BASF Corporation
Chemicals Division

BASF

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P 343 426 311

November 6, 1986

USEPA, Region V
HAZARDOUS WASTE MANAGEMENT
Permits Section
230 South Dearborn Street
Chicago, IL 60604

RE: NOTIFICATION OF FACILITY CLOSURE
BASF CORPORATION - TROY WORKS
EPA I. D. Number MID 057007478 & TSD, PA

Gentlemen:

Notice is hereby given that the above facility will cease production at the end of 1986. As required by Part 265 of Resource Conservation and Recovery Act, the closure plan for this small facility shall be completed in the first quarter of 1987. BASF Corporation will submit certification of inspection by an independent Michigan licensed professional engineer pursuant to these regulations upon completion of the closure plan.

Please direct any questions concerning this correspondence to my attention.

Very truly yours,

BASF CORPORATION CHEMICALS DIVISION
Environmental Affairs Department

Keith Fry
Director

RWD11.1

STATE OF MICHIGAN

JAMES J. BLANCHARD, Governor

DEPARTMENT OF NATURAL RESOURCES

RONALD O. SKOOG, Director

S.E. Michigan Field Office
15500 Sheldon Road
Northville, MI 48167

July 24, 1985

BASF Wyandotte Corporation
100 Cherry Hill Road
P.O. Box 181
Parsippany, NJ 07054
Attn: A.D. Gillen, Manager
Corporate Environmental Affairs

RE: MID 064197742 1609 Biddle Avenue
Wyandotte, MI 48192
and
MID 057007478 1200 Blaney Drive
Troy, MI 48084

Dear A.D. Gillen:

This letter is to acknowledge receipt of your letter dated July 9, 1985, providing additional information regarding your closure plans for the above referenced facilities. I consider your response acceptable at this time.

Thank you for your cooperation.

Sincerely,

Kenneth L. Damrel

Kenneth L. Damrel
Environmental Engineer
HAZARDOUS WASTE DIVISION

KD:jg

cc: U.S. EPA, Region V
B. Okwumabua

BASF Wyandotte Corporation

BASF

100 Cherry Hill Road
P.O. Box 181
Parsippany, N.J. 07054
201/263-3400

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P35 1210880

July 9, 1985

Michigan Department of Natural Resources
Hazardous Waste Division
S.E. Michigan Field Office
15500 Sheldon Road
Northville, Michigan 48167

Re: Closure Plan Deficiencies--MID-064197742

Attention: Mr. K. L. Damrel

Dear Mr. Damrel:

I am in receipt of your letter dated 17 June 1985 regarding your review of BASF Wyandotte Corporation's closure plan for our facility in Wyandotte, Michigan. BASF Wyandotte Corporation has the required RCRA financial assurance mechanisms for closure as well as the required RCRA liability insurance for this facility.

Enclosed are copies of BASF Wyandotte Corporation's most recent submittals to Region V documenting compliance with these requirements. Please direct any questions concerning this matter to my attention.

Sincerely,

A. D. Gillen
Manager
Corporate Environmental Affairs

/cir

enclosures
cc: L. A. Anderson
H. D. Roush

7/10/85

STATE OF MICHIGAN

JAMES J. BLANCHARD, Governor

DEPARTMENT OF NATURAL RESOURCES

RONALD O. SKOOG, Director

S.E. Michigan Field Office
15500 Sheldon Road
Northville, MI 48167

June 17, 1985

BASF Wyandotte
1609 Biddle Avenue
Wyandotte, MI 48192
Attn: H.D. Roush, Manager
Environmental Protection

RE: MID 064197742

Dear Mr. Roush:

The Hazardous Waste Division has received your closure plan for the facility located at the above address. Based on review of the closure plan, the following deficiencies were noted:

1. The financial assurance mechanism for closure was not provided as required by 40 CFR §265.143.

2. The liability requirements for sudden and non-sudden accidental occurrences as required by 40 CFR §265.147 were not provided.

You are requested to respond to this letter by July 10, 1985, providing documentation to this office regarding those actions taken to correct these violations. If you have any questions regarding this matter, please feel free to contact me at (313) 459-9180.

Sincerely,

Kenneth L Damrel

Kenneth L. Damrel
Environmental Engineer
HAZARDOUS WASTE DIVISION

KD:jg

cc: U.S. EPA, Region V
B. Okwumabua

BASF Wyandotte Corporation

BASF

Wyandotte, Michigan 48192
313 246-6100
TWX: 810-231-5756 (BASFWYAN)

April 23, 1985

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
No. P 447 526 723

Mr. William G. Muno, Chief
U. S. Environmental Protection Agency
Hazardous Waste Enforcement Branch
RCRA Enforcement Section - 5HE-12
230 South Dearborn Street
Chicago, IL 60604

APR 25 1985

HAZARDOUS WASTE DIV

Re: Letter of Warning
BASF Wyandotte Corporation
MID 064 197 742

Dear Mr. Muno:

Per your March 29, 1985 request, BASF Wyandotte Corporation (BWC) is forwarding to your attention an up-to-date Closure/Post Closure Plan for the Wyandotte Works MID 064 197 742. Two (2) copies have also been forwarded to the Michigan Department of Natural Resources.

Yours truly,

H. D. Roush
Manager
Quality Assurance, Hygiene
and Environmental Protection

mh
enc.

cc: Michigan Dept. of Natural Resources
Hazardous Waste Division
15500 Sheldon Road
Northville, MI 48167

Certified #P 447 526 724

MAR 2 9 1985

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

BASF Wyandotte Corporation
1700 Blaney Drive
Troy, Michigan 48084

Re: Letter of Warning
BASF Wyandotte Corporation
MID 057 007 478

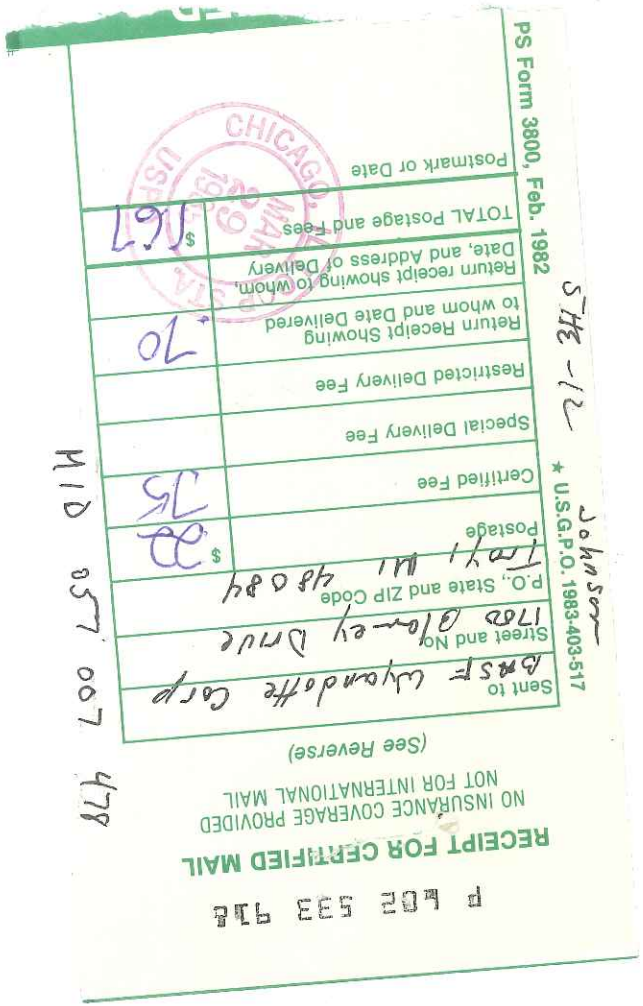
Gentlemen:

On January 23, 1985, the Michigan Department of Natural Resources (MDNR) requested the BASF Wyandotte Corporation to submit a copy of their closure plan. To date, MDNR has not received the corporation's closure plan.

The MDNR is obligated to review the adequacy of closure plans under 40 CFR 265 Subpart G through the FY 85 Hazardous Waste Cooperative Agreement with the U.S. Environmental Protection Agency (U.S. EPA).

Because the BASF Wyandotte Corporation failed to submit a copy of their closure plan to MDNR, the U.S. EPA is requesting that BASF Wyandotte Corporation provide our Agency with a copy of the closure plan. Failure to provide this plan within 30 days of receipt of this notice will subject the facility to further enforcement action. Please forward a copy of an up-to-date closure plan to:

U.S. Environmental Protection Agency
Hazardous Waste Enforcement Branch
RCRA Enforcement Section - 5HE-12
230 South Dearborn Street
Chicago, Illinois 60604



RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to: BASF Wyandotte Corp
Street and No.: 1700 Olney Drive
P.O., State and ZIP Code: Troy, MI 48084

Postage	$.39
Certified Fee	.75
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	.70
Return receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$1.67
Postmark or Date	

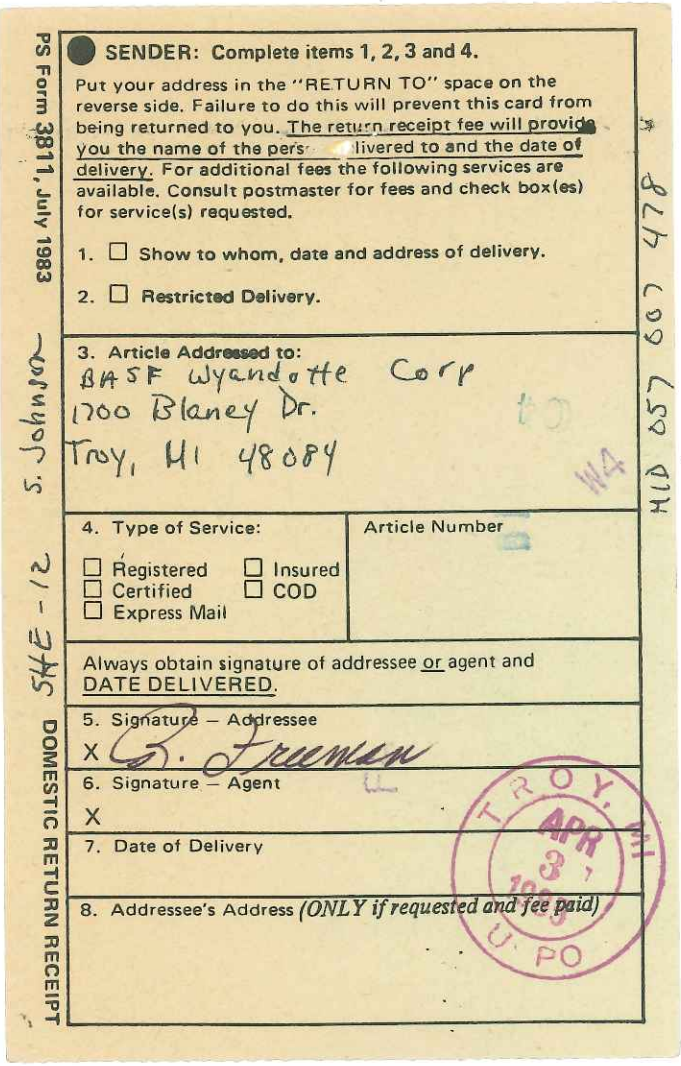
PS Form 3800, Feb. 1982

* U.S.G.P.O. 1983-403-517

P 602 533 914

SHE - 12 Johnson

MID 057 607 478



PS Form 3811, July 1983

DOMESTIC RETURN RECEIPT

SHE - 12 S. Johnson

MID 057 607 478

● SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.

3. Article Addressed to:
BASF Wyandotte Corp
1700 Blaney Dr.
Troy, MI 48084

4. Type of Service:
☐ Registered ☐ Insured
☐ Certified ☐ COD
☐ Express Mail

Article Number

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X S. Freeman

6. Signature – Agent
X

7. Date of Delivery

8. Addressee's Address *(ONLY if requested and fee paid)*

TROY, MI APR 3 1984 U.S. POSTAL SERVICE

Two additional copies of the closure plan should also be sent to:

Michigan Department of Natural Resources
Hazardous Waste Division
15500 Sheldon Road
Northville, Michigan 48167

If you have any questions, please contact Ms. Sharon R. Johnson of my staff at (312) 886-4592.

Sincerely yours,

William E. Muno, Chief
RCRA Enforcement Section

cc: J. Bohunsky, MDNR
B. Okwumbua, MDNR
S.E. District Office

SRJOHNSON:srj:WI/MI Unit:3-27-85

INITIALS / DATE	TYPIST	AUTHOR	STU #1 CHIEF	STU #2 CHIEF	STU #3 CHIEF	TPS CHIEF	WMB CHIEF	WMD
		3-28-85	R.K 3-28-85			WEM 3-29-85		

BASF Wyandotte Corporation

BASF

Wyandotte, Michigan 48192
313 246-6100
TWX: 810-231-5756 (BASFWYAN)

April 23, 1985

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
No. P 447 526 725

Mr. William G. Muno, Chief
U. S. Environmental Protection Agency
Hazardous Waste Enforcement Branch
RCRA Enforcement Section - 5HE12
230 South Dearborn Street
Chicago, IL 60604

HWEB
RECEIVED
APR 8 1985

Re: BASF Wyandotte Corporation
Letter of Warning
Troy Facility MID 057 007 478

Dear Mr. Muno:

Per your March 29, 1985 request, BASF Wyandotte Corporation (BWC) is forwarding to your attention an up-to-date Closure/Post Closure Plan for the Troy Facility MID 057 007 748. Two (2) copies have also been forwarded to the Michigan Department of Natural Resources.

Yours truly,

H. D. Roush
Manager
Quality Assurance, Hygiene
and Environmental Protection

mh
enc.

cc: Michigan Dept. of Natural Resources
Hazardous Waste Division
155 Sheldon Road
Northville, MI 48167
Certified #P 447 526 726

STATE OF MICHIGAN

JAMES J. BLANCHARD, Governor

DEPARTMENT OF NATURAL RESOURCES

RONALD O. SKOOG, Director

S.E. Michigan Field Office
15500 Sheldon Road
Northville, MI 48167

January 23, 1985

BASF Wyandotte Corp.
1700 Blaney Drive
Troy, Mich

RE: MID 057007478

Gentlemen:

As part of our FY85 Hazardous Waste Management Cooperative Agreement with the U.S. EPA, we are obligated to review the adequacy of the closure and post-closure plans for all hazardous waste treatment storage and disposal facilities (TSDFs) in the state.

Your facility falls under this classification. Therefore, please submit two up-to-date copies of your closure plan for your treatment, storage, and disposal facility by February 15, 1985.

The above should be sent to the following address:

Hazardous Waste Division
Michigan Department of Natural Resources
15500 Sheldon Road
Northville, MI 48167

If you have any questions regarding this letter, please contact me at (313) 459-9180.

Sincerely,

Benedict N. Okwumabua, PhD.
District Supervisor
Hazardous Waste Division

cc: U.S. EPA
J. Bohunsky
A. Howard

A.4.2

Troy Compliance File

BASF Wyandotte Corporation

100 Cherry Hill Road
P.O. Box 181
Parsippany, N.J. 07054
201/263-3400

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
P35 1210942

July 10, 1985

Michigan Department of Natural Resources
Hazardous Waste Division
S.E. Michigan Field Office
15500 Sheldon Road
Northville, Michigan 48167

Re: Closure Plan Deficiencies--MID-057007478--
Troy Facility

Attention: Mr. K. L. Damrel

Dear Mr. Damrel:

I am in receipt of your letter dated 17 June 1985 regarding your review of BASF Wyandotte Corporation's closure plan for our facility in Troy, Michigan. BASF Wyandotte Corporation has the required RCRA financial assurance mechanisms for closure as well as the required RCRA liability insurance for this facility.

The documentation you requested is identical to the enclosures supplied in my letter to you dated 9 July 1985 regarding our Wyandotte facility. Please refer to that letter for our response to this request.

Sincerely,

A. D. Gillen
Manager
Corporate Environmental Affairs

/cir

cc: H. D. Roush
R. Merriweather

STATE OF MICHIGAN

JAMES J. BLANCHARD, Governor

DEPARTMENT OF NATURAL RESOURCES

RONALD O. SKOOG, Director

S.E. Michigan Field Office
15500 Sheldon Road
Northville, MI 48167

June 17, 1985

BASF Wyandotte Corp.
Troy Michigan Facility
1200 Blaney Drive
Troy, MI 48084
Attn: H. Dale Roush, Manager
Environmental Protection

RE: MID 057007478

Dear Mr. Roush:

The Hazardous Waste Division has received your closure plan for the facility located at the above address. Based on review of the closure plan, the following deficiencies were noted:

1. The financial assurance mechanism for closure was not provided as required by 40 CFR §265.143.

2. The liability requirements for sudden and non-sudden accidental occurrences as required by 40 CFR §265.147 were not provided.

You are requested to respond to this letter by July 10, 1985, providing documentation to this office regarding those actions taken to correct these violations. If you have any questions regarding this matter, please feel free to contact me at (313) 459-9180.

Sincerely,

Kenneth L Damrel

Kenneth L. Damrel
Environmental Engineer
HAZARDOUS WASTE DIVISION

KD:jg

cc: U.S. EPA, Region V
B. Okwumabua

BASF Wyandotte Corporation

BASF
Wyandotte, Michigan 48192
313 246-6100
TWX: 810-231-5756 (BASFWYAN)

April 23, 1985

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
No. P 447 526 725

Mr. William G. Muno, Chief
U. S. Environmental Protection Agency
Hazardous Waste Enforcement Branch
RCRA Enforcement Section - 5HE12
230 South Dearborn Street
Chicago, IL 60604

Re: BASF Wyandotte Corporation
Letter of Warning
Troy Facility MID 057 007 478

Dear Mr. Muno:

Per your March 29, 1985 request, BASF Wyandotte Corporation (BWC) is forwarding to your attention an up-to-date Closure/Post Closure Plan for the Troy Facility MID 057 007 748. Two (2) copies have also been forwarded to the Michigan Department of Natural Resources.

Yours truly,

H. D. Roush
Manager
Quality Assurance, Hygiene
and Environmental Protection

mh
enc.

cc: Michigan Dept. of Natural Resources
Hazardous Waste Division
155 Sheldon Road
Northville, MI 48167
Certified #P 447 526 726

CLOSURE AND POST-CLOSURE PLAN

HAZARDOUS WASTE MANAGEMENT

STORAGE FACILITIES

BASF WYANDOTTE CORPORATION
TROY MICHIGAN FACILITY
EPA ID NO. MID 057007478

PUBLISHED: 11/80
REVISED: 3/83
REVISED: 4/85

TABLE OF CONTENTS

I. SITE IDENTIFICATION

BASF Wyandotte Corporation
Troy Michigan Facility
1200 Blaney Drive
Troy, Michigan 48084

(313) 643-0880

EPA ID No. MID 057007478

Generator and Storage Facility

Plant Manager: Rudy Merriweather

Manager, Environmental Protection: H. Dale Roush

II. INTRODUCTION (40 CFR 265.112(a),(b),(d))

a. Document description. This is the closure plan of the Hazardous Waste Management Facility (hereinafter Facility) at BASF Wyandotte Corporation's (BWC's) Troy, Michigan site. This plan must be followed by the Plant Manager if operations at this site are terminated and the Facility is closed down.

b. Certification and notification of closure (265.112a,d) One hundred eighty days prior to closure, written notification of closure shall be submitted along with this closure plan to:

Regional Administrator
Region V. U.S. EPA
230 South Dearborn St.
Chicago, IL 60604

Upon completion of the closure plan, the Plant Manager, with support from Corporate Environmental Protection, shall engage an independent professional engineer (P.E.) licensed to practic engineering by the State of Michigan. The P.E. will be required to review the plant's RCRA files and inspect the facility to verify removal of all hazardous wastes in accordance with this closure plan. When satisfied that closure has been completed, the P.E. shall submit a sealed letter to the Regional Administrator certifying that closure has been accomplished. A separate letter of certification must also be submitted to the Regional Administrator signed by an officer of BWC.

c. Date of closure (265.112a4). BWC anticipates closure of this facility in 1985.

III. GENERAL INFORMATION

a. Facility description

The Troy Facility is in the City of Troy, Michigan which is located approximately 14 miles north of Detroit. The plant boundaries encompass about 1.7 acres.

Approximately 26 full-time salaried employees formulate, blend, package and ship cellular and non-cellular urethane systems. Major industrial customers include automotive, construction, appliance and shoe sole manufacturers.

b. Waste characterization

Generation and storage of regulated hazardous waste at this facility ceased in 1984. There is no anticipation for resuming this activity. Closure will be accomplished in 1985.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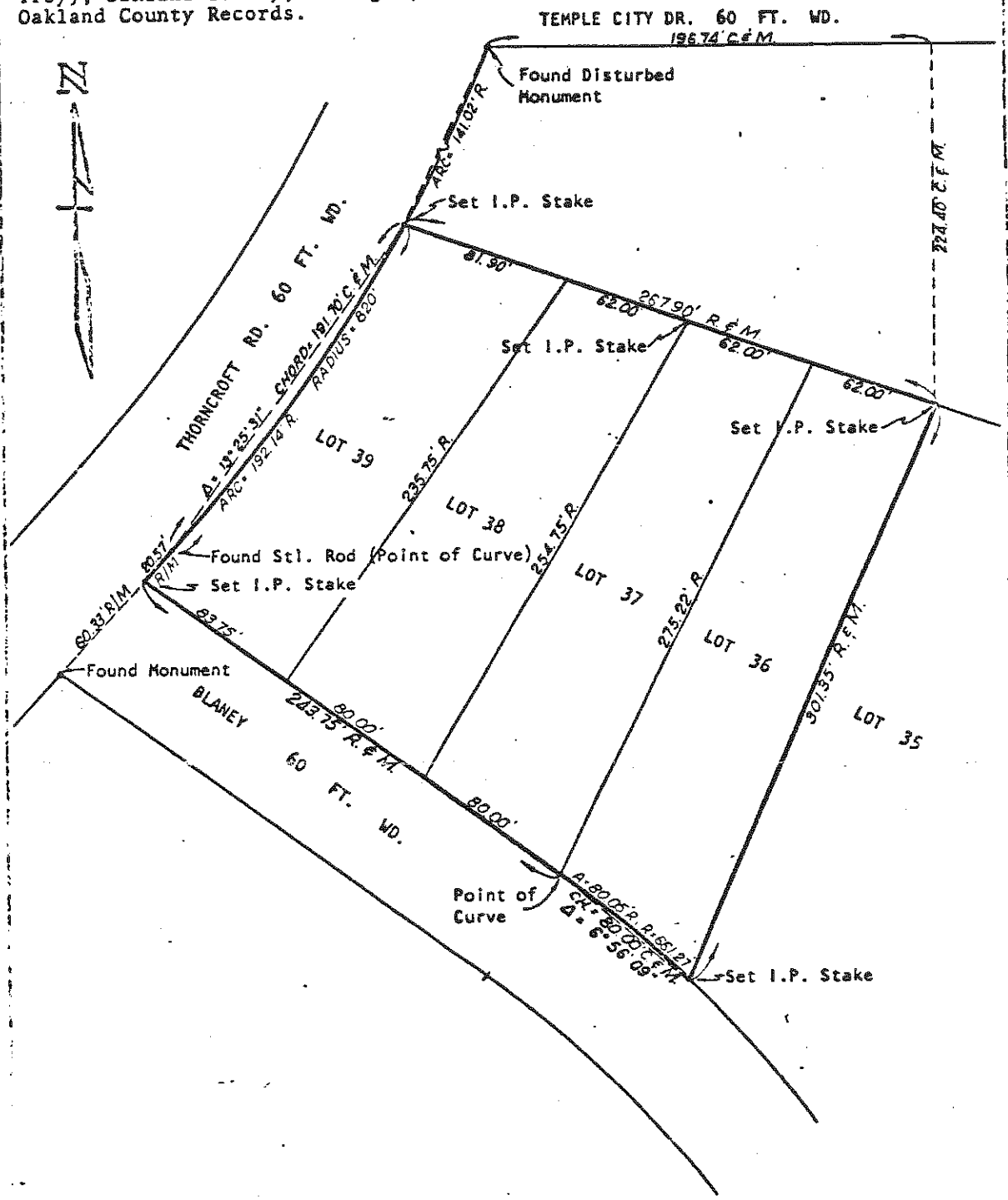
WEGO HGR.
BLOOMFIELD HILLS
BLOOMFIELD TWP
CRANBROOK
TROY
OAKLAND
MACOMB
STERLING
BIRMINGHAM
CLAWSON
Franklin
Beverly Hills
Fms.
ROYAL OAK
MADISON HGTS.
LATHRUP VILL.
BERKLEY
DETROIT ZOO
SOUTHFIELD
OAK PARK
FERNDALE
AZEL PK.
CENTERLIN
STATE FAIRGROUNDS
DETROIT
HIGHLAND PARK
HAMTRAM
DEARBORN HGTS.
DEARBORN
GREENFIELD VILLAGE
INKSTER
MELVINDALE
RIVER ROUGE
ALLEN PARK
ECORSE
Windsor, Ontario
Canada
- 4 -

SKETCH OF SURVEY
for
BASF WYANDOTTE CORPORATION
1700 Blaney, Troy, Michigan

Lots 36, 37, 38 and 39, SUPERVISOR'S PLAT NO. 23, a subdivision of part of the S.E. 1/4 of Section 29, T. 2 N., R. 11 E., Troy Township (now City of Troy), Oakland County, Michigan, as recorded in Liber 15 of Plats, Page 58, Oakland County Records.



SURVEYOR'S CERTIFICATE

I, Boyd W. Arthurs, a Registered Surveyor in the State of Michigan, HEREBY CERTIFY that I have surveyed the parcel of land described and delineated hereon, that said plat is a true representation of the survey performed by me, that said survey was performed with an error of closure no greater than 1 in 5000; and that said survey is in compliance with Section 3, Act No. 132, Public Acts of 1970.

JOB NO. 200-74-a

DATE August 28, 1974

Boyd W. Arthurs

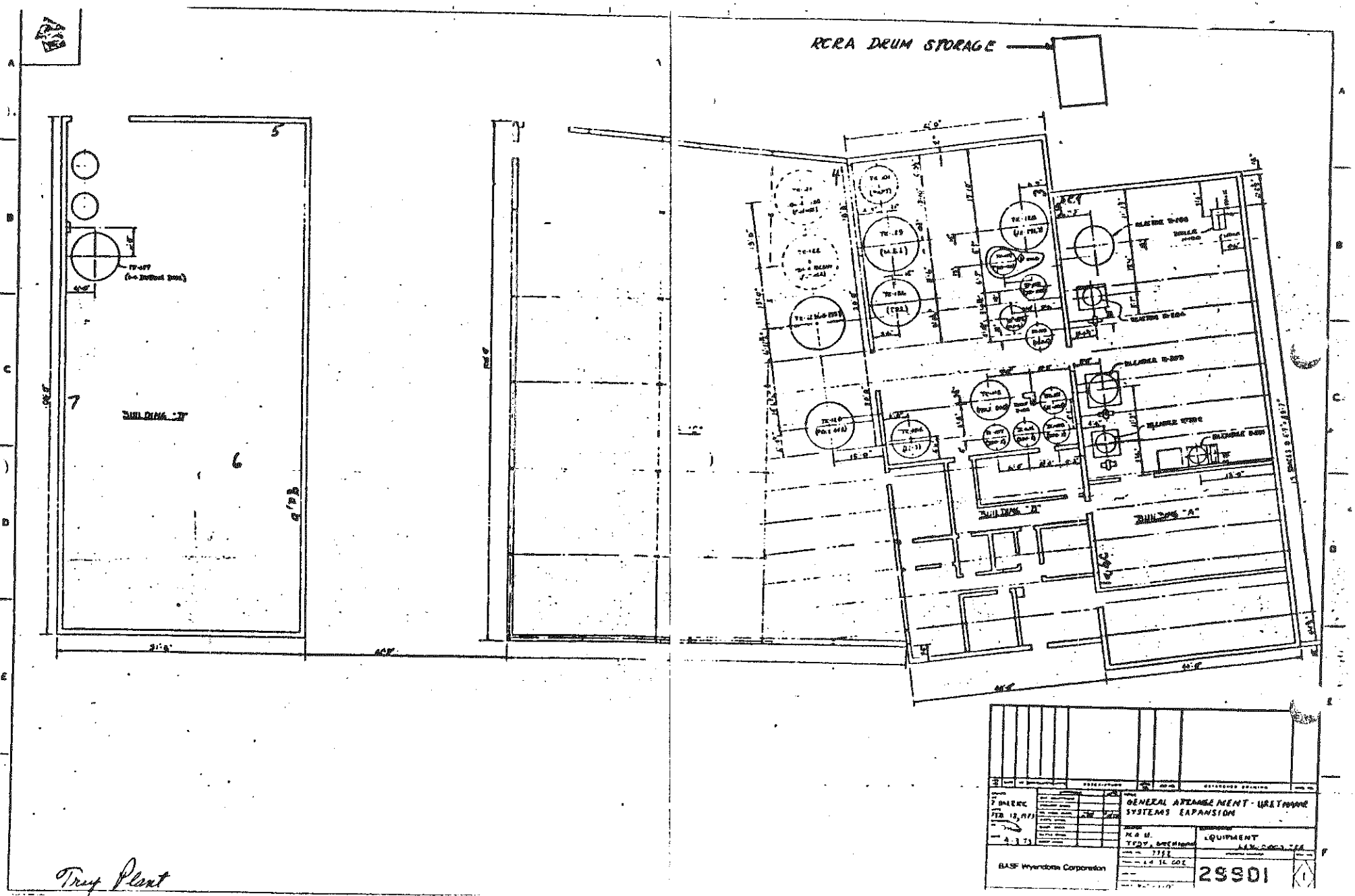
Boyd W. Arthurs
Registered Land Surveyor No. 11358
2321 West Jefferson, P.O. 206
Trenton, Michigan 48183

LEGEND

R. Recorded

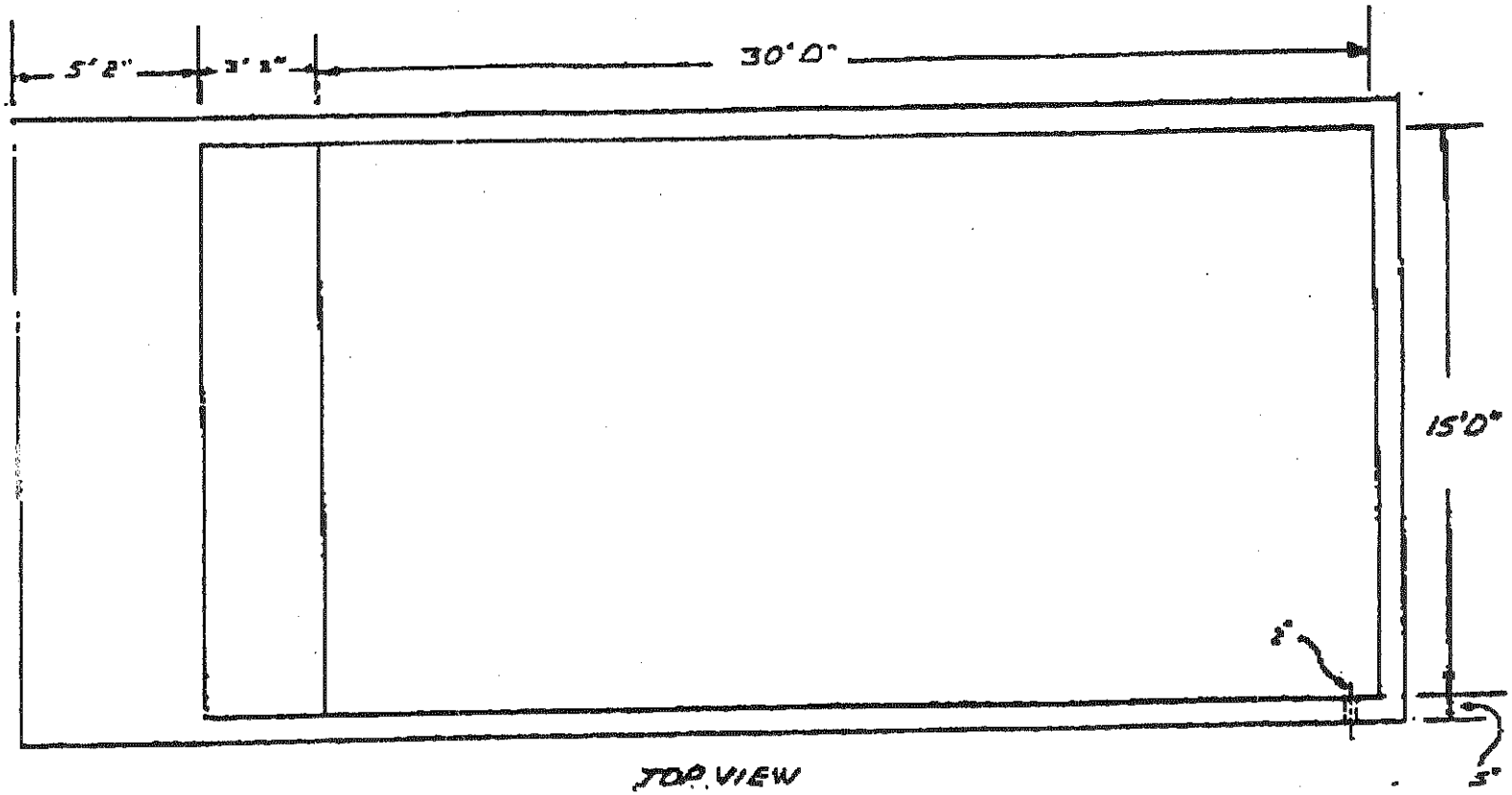
M. Measured

Scale: one inch 60 feet

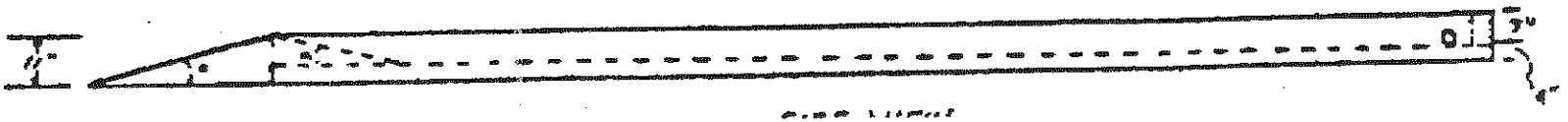

RCRA DRUM STORAGE
BUILDING "B"
BUILDING "A"
BASF Wyandotte Corporation
29901

Troy Plant

HAZARDOUS WASTE DRUM DIKE



TOP VIEW



IV. MAXIMUM EXTENT OF OPERATION (265.112a1)

The container storage area consists of a continuously poured rectangular cement slab, 15 ft. x 30 ft. in size. Surrounding the perimeter is a 7" curb capable of containing any potential spill. Accumulated rain water can be drained from within the enclosure through a 2" manual drain valve which is kept in a closed and padlocked position when not in use.

V. ESTIMATE OF MAXIMUM WASTE IN STORAGE (265.112a2)

This facility has not actively stored hazardous waste on site since 1984.

VI. CLOSURE PLAN (265.112a(3))

BWC intends to proceed with closure of hazardous waste storage area. The outside storage pad will continue to be used for other storage purposes and will not be removed. BWC will remove all hazardous waste stored for more than 30 days and verify through visual inspections that the concrete pad is clean.

In the unlikely case of any positive proof of any spills or leaks discovered or created upon removal of these wastes, samples will be taken and analyzed for parameters of specific waste types stored to determine the presence of contamination on the storage pad, the soil and if necessary, in groundwater. EPA approved sampling and analytical methods will be used. Spilled material would be cleaned up by applying neutralization solution, adding adsorbent material such as "vermiculite" or "oil dry" (if needed) and shoveling material into a sound container for disposal at a licensed facility. If the spill or leak occurred from a defective drum, the remaining contents of that drum would also be transferred to a sound container for disposal. Any contaminated soil would be disposed of in a similar manner.

VII. CLOSURE SCHEDULE (265.112a3,4)

Step	Time Required	Equipment and/or Special Provisions
Check inventory of filled or partially filled drums	Instantaneous	(Count drums and check against log inventory)
Contact approved and licensed hauler and disposal facility to schedule shipment	30 days	Contracts in place. Specific time required dependent on disposal facility schedule. Incineration is preferred method of disposal.
Visually inspect storage area	Instantaneous	Any waste residue remaining would be obvious to visual inspection
Rinse with isocyanate neutralization solution	4 hours	Neutralization solution consists of water containing 5% ammonia and 5% detergent. Isocyanate reaction with neutralizing solution is immediate and complete. Spent solution and reaction product (urea) are considered non-hazardous and non-toxic.
Inspect storage pad to assure decontamination	1 hour	BWC Environmental Protection personnel
Schedule site inspection and certification by Michigan licensed professional engineer.	5 days	

No post-closure program is necessary.

VIII. COST ESTIMATE FOR CLOSURE (265.142)

Description of Expenditure	Cost
Labor - 8 man hours @ $20/hr. to decontaminate storage pad with neutralization solution	$ 160
Cleaning equipment - soap, water, hoses, brushes, etc.	100
Shipping of 20 drums - up to 300 miles @ $3/mile total costs	900
Disposal (incineration) of 20 drums @ $100/drum	2,000
Inspection and certification by licensed professional engineer	240
TOTAL	$3,400

IX. POST-CLOSURE PLAN (265.118) AND POST-CLOSURE COST ESTIMATE (265.144)

Due to the nature of this facility and its closure plan, neither post-closure plans nor post-closure cost estimates are required.

APR 0 8 1985

HAZARDOUS WASTE DIV

MAR 29 1985

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

BASF Wyandotte Corporation
1700 Blaney Drive
Troy, Michigan 48084

Re: Letter of Warning
BASF Wyandotte Corporation
MID 057 007 478

Gentlemen:

On January 23, 1985, the Michigan Department of Natural Resources (MDNR) requested the BASF Wyandotte Corporation to submit a copy of their closure plan. To date, MDNR has not received the corporation's closure plan.

The MDNR is obligated to review the adequacy of closure plans under 40 CFR 265 Subpart G through the FY 85 Hazardous Waste Cooperative Agreement with the U.S. Environmental Protection Agency (U.S. EPA).

Because the BASF Wyandotte Corporation failed to submit a copy of their closure plan to MDNR, the U.S. EPA is requesting that BASF Wyandotte Corporation provide our Agency with a copy of the closure plan. Failure to provide this plan within 30 days of receipt of this notice will subject the facility to further enforcement action. Please forward a copy of an up-to-date closure plan to:

U.S. Environmental Protection Agency
Hazardous Waste Enforcement Branch
RCRA Enforcement Section - 5HE-12
230 South Dearborn Street
Chicago, Illinois 60604

Two additional copies of the closure plan should also be sent to:

Michigan Department of Natural Resources
Hazardous Waste Division
15500 Sheldon Road
Northville, Michigan 48167

If you have any questions, please contact Ms. Sharon R. Johnson of my staff at (312) 886-4592.

Sincerely yours,

William E. Muno, Chief
RCRA Enforcement Section

cc: J. Bchunsky, MDNR
B. Okwumbua, MDNR
S.E. District Office

BASF CORPORATION CHEMICALS DIVISION

BASF

MI.

MID 057007478

June 28, 1988

Ms. Ronda L. Hall
Environmental Engineer
Department of Natural Resources
Ottawa Street Building
P. O. Box 30028
Lansing, MI 48909

Dear Ms. Hall,

Attached is the Revised Closure Plan, per changes cited in May 18, 1988 deficiency letter for our facility at 1200 Blaney Drive, Troy, MI. A post-closure plan has not been prepared because this is not a disposal facility and all hazardous wastes will be removed during closure.

I trust that this revised plan will meet with your approval. If you have any questions, please call me at (313)591-5588.

Regards,

William Robert

William P. Robert
Ecology Coordinator
Urethane Specialties

WPR/dr

cc:W. Kraemer, B.C.H.
Richard Traub, U.S. E.P.A.
Ben Okwumabua, D.N.R.

13000 Levan, Livonia, Michigan 48150 (313) 591-6200

CLOSURE PLAN

HAZARDOUS WASTE MANAGEMENT

STORAGE FACILITIES

BASF CORPORATION

TROY MICHIGAN FACILITY

EPA ID NO. MID 057007478

Published: 11/80
Revised: 3/83
Revised: 4/85
Revised: 4/88
Revised: 6/88

TABLE OF CONTENTS

I. SITE IDENTIFICATION

BASF Corporation
Troy Michigan Facility
1200 Blaney Drive
Troy, Michigan 48084

(313) 591-5553

EPA ID No. MID 057007478

Generator and Storage Facility

Plant Manager: Rudy Merriweather

Ecology Coordinator: W. Robert

II. INTRODUCTION [40 CFR 265.112(a)(b)(d)]

a. Document Description.

This is the closure plan of the Hazardous Waste Management Facility (hereinafter Facility) at BASF Corporation's (BASF's) Troy, Michigan site. The storage facility was constructed in 1981 to hold and contain drums of methylene chloride and isocyanate wastes in accordance with RCRA/Act 64 requirements and BASF corporate standards. Due to a business expansion and relocation, production at BASF's Troy facility ceased in 1986.

In light of the fact that the Troy site will be cleaned, closed and sold this negated the need for further maintenance and thus prevents or minimizes post closure escape of hazardous waste or constituents.

b. Certification and Notification of Closure [265.112(a)(d).

One hundred eighty days prior to closure, written notification of closure shall be submitted along with this closure plan to:

Michigan Department of Natural Resources
Waste Management Division
Hazardous Waste Permit Section
Ottawa Street Building
P.O. Box 30028
Lansing, MI 48904

completion of the closure plan, the Plant Manager, with support from Corporate Environmental Protection, shall engage an independent professional engineer (P.E.) licensed to practice engineering by the State of Michigan. The P.E. will be required to review the plant's RCRA files and inspect the facility to verify removal of all hazardous wastes in accordance with this closure plan. When satisfied that closure has been completed, the P.E. shall submit a sealed letter to the Michigan DNR certifying that closure has been accomplished. A separate letter of certification must also be submitted to the Michigan DNR signed by an officer of BASF.

Currently all hazardous waste which were stored at this site have been removed and disposed of in accordance with State, Federal and BASF corporate requirements for Hazardous Waste Management. Closure will be completed within 180 days of the closure starting date. The Michigan Department of Natural Resources (DNR) will be notified 45 days prior to the closure starting date and

will have a copy of all results and analytical methods used with detection limits (see VI6).

If decontamination of the waste storage pad is required, a neutralization solution (see VII) will be used and disposed of in the Troy POTW. The waste disposed of will be non hazardous and non toxic liquid.

c. Date of Closure [265.112(a)(4)].

BASF anticipates closure of this facility in 1988.

III. GENERAL INFORMATION

a. Facility Description

The Troy Facility is in the City of Troy, Michigan which is located approximately 14 miles north of Detroit, The plant boundaries encompass about 1.7 acres.

Approximately 26 full-time salaried employees formulated, blended, packaged and shipped cellular and non-cellular urethane systems. Major industrial customers include automotive, construction, appliance and shoe sole manufacturers.

Operations ceased at this location in 1986.

b. Waste Characterization

Generation and storage of regulated hazardous waste at this facility ceased in 1986. There is no anticipation for resuming this activity. Closure will be accomplished in 1988.

IV. MAXIMUM EXTENT OF OPERATION [265.112(a)(1)]

The hazardous waste drum storage area consists of a continuously poured rectangular cement slab, 15 t. x 30 ft. in size. Surrounding the perimeter is a 7" curb capable of containing any potential spill. Accumulated rain water can be drained from within the enclosure through a 2" manual drain valve which is kept in a closed and padlocked position when not in use. The hazardous waste drums storage area has not been utilized for storing wastes since 1986. It is BASF Corporation's intent not to use this storage area for hazardous waste storage in the future.

V. ESTIMATE OF MAXIMUM WASTE IN STORAGE [265.112(a)(2)]

This facility has not actively stored hazardous waste on site since 1986.

While the hazardous waste drum storage area was in use a maximum of 100 drums of material was stored. The materials stored in this area were:

U223 - Toluene Diisocyanate
F002 - Spent Methylene Chloride

VI. CLOSURE PLAN [265.112(a)(3)]

To verify the complete clean closure of the outdoor hazardous waste drum storage pad the following procedures will be implemented.

a. Soil Sampling.

Prior to the soil boring, an upper layer of concrete or asphalt will be removed through use of a cement core drill. Thus cement and asphalt can be removed to sample soil below. Soil borings will be made at four locations, (see attached soil boring/grid system drawing) using a hand or power auger to a maximum depth of 24 inches below the bottom of the concrete or asphalt layer. Five (5) soil samples will be collected at each boring: discrete samples will be collected at the surface and 6, 12, 18 and 24 inches below the surface.

Soil will be collected in the appropriate containers, preserved, and stored in accordance with the Environmental Protection Agency (EPA) Publication SW-846 protocol, Testing Methods for Evaluating Solid Waste.

b. Sample Analysis.

The samples will be analyzed for toluene diisocyanate (TDI) and methylene chloride. Toluene diisocyanate (TDI) is analyzed by analyzing for a degradation product toluene diamine (TDA). The soil sample will be analyzed using SW-846 Method 3540 - Soxhlet extraction using methylene chloride as the solvent. The extracts will be concentrated and analyzed by GC/MS using a DB-5 column. The lower limit of detection is 10 mg./Kg.

To analyze for methylene chloride, 10 grams of sample will be placed in a purge and trap tube and 10 ml. of distilled water was added. EPA Method 624 - Volatile organic analysis by GC/MS will be used for analysis. The lower limit of detection is 1 mg./Kg.

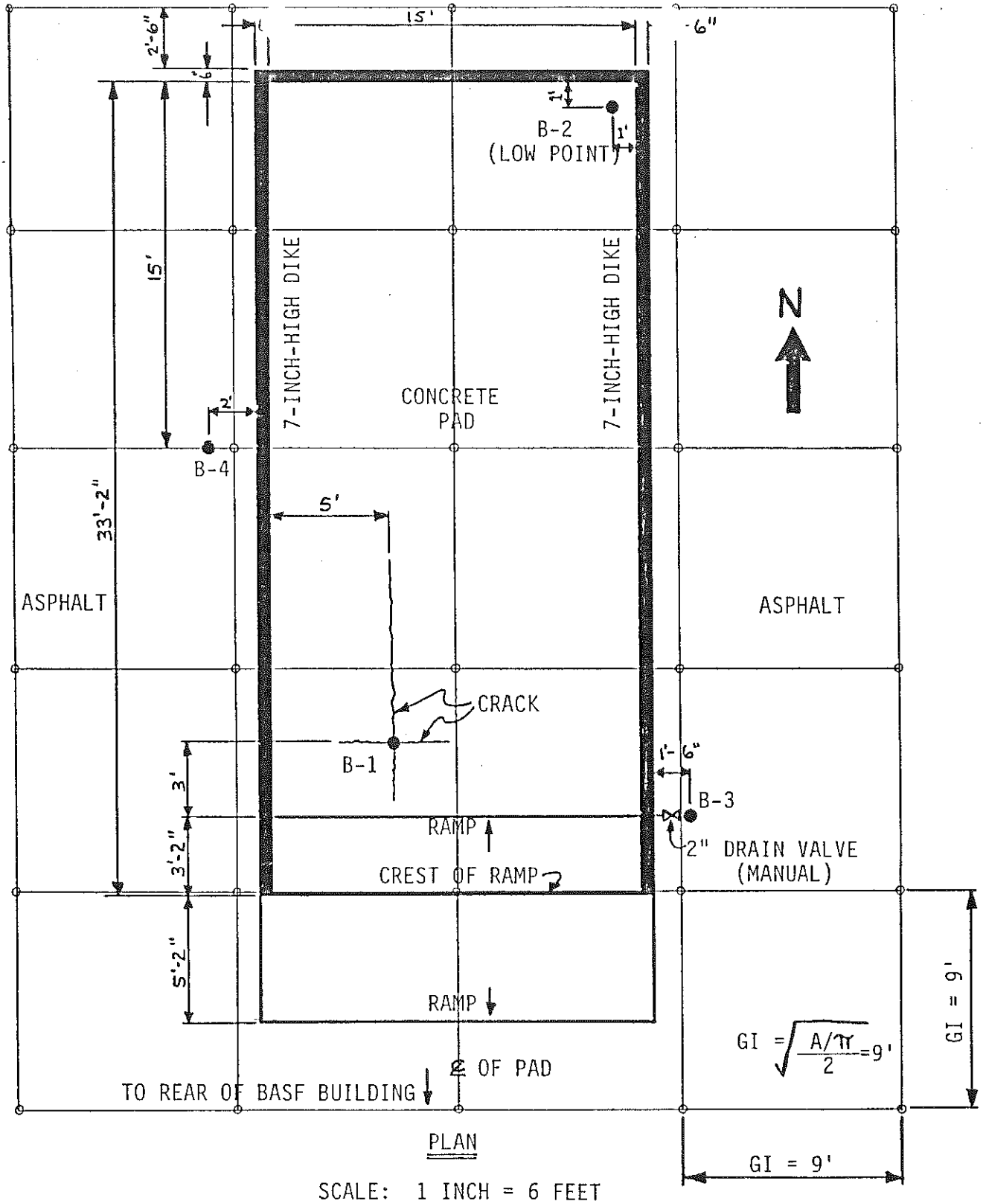
If the initial soil samples indicate no evidence of hazardous materials being present, then the pad will be left intact.

If the initial soil samples indicate a contamination with TDI or methylene chloride, the extent of the contamination will be determined by collecting additional soil samples as shown in the attached drawing (grid interval of 8.5 feet was calculated using guidelines outlined in the Michigan Department of Natural Resources publication "How Clean Is Clean?").

c. Excavation

Depending upon the results of the additional soil samples the pad will be removed, soil excavated and all materials properly disposed of as outlined in Act 64/RCRA clean closure guidelines "How Clean Is Clean?.

If deemed necessary through analytical results of the soil testing, the asphalt and concrete will be removed, decontaminated as noted in V11 neutralization, and disposed of in a licensed sanitary landfill. Soil deemed contaminated will be disposed of in a licensed hazardous waste landfill.



PLAN

SCALE: 1 INCH = 6 FEET

LEGEND

- ● INITIAL SOIL SAMPLE LOCATION SOIL BORING B-1,2,3,4
- o SOIL SAMPLE LOCATION IF CONTAMINATION FOUND
- GI GRID INTERVAL

SOIL BORING/GRID SYSTEM
FOR
RCRA DRUM STORAGE AREA

BASF CORPORATION
TROY MANUFACTURING FACILITY
TROY, MICHIGAN

4-29-88

VII. CLOSURE SCHEDULE [265.112(a)(3,4)]

Step	Time Required	Equipment and/or Special Provisions
Check inventory of filled or partially filled drums	Instantaneous	(Count drums and check against log inventory)
Contact approved and licensed hauler and disposal facility to schedule shipment	30 days	Contracts in place. Specific time required dependent on disposal facility schedule. Incineration is preferred method of disposal.
Visually inspect storage area	Instantaneous	Any waste residue remaining would be obvious to visual inspection
Rinse with isocyanate neutralization solution	4 hours	Neutralization solution consists of water containing 5% ammonia and 5% detergent. Isocyanate reaction with neutralizing solution is immediate and complete. Spent solution and reaction product (urea) are considered non-hazardous and non-toxic and can be discharged to the Troy POTW
Inspect storage pad to assure decontamination	1 hour	BASF Environmental Protection personnel
Sample soil underlying storage pad to confirm clean closure	45 days	All work to be performed according to MDNR "How Clean Is Clean". If necessary, concrete and asphalt will be decontaminated with neutralization solution and disposed of in a licensed sanitary landfill. Contaminated soil will be removed to a depth specified by analytical results in a

licensed hazardous waste land fill.

Schedule site inspection and certification by Michigan licensed professional engineer.	5 days

No post-closure program is necessary.

VIII. COST ESTIMATE FOR CLOSURE [265.142]

Description of Expenditure	Cost
Labor - 8 man hours @ $20/hr. to decontaminate storage pad with neutralization solution*	$ 160
Cleaning equipment - soap, water, hoses, brushes, etc.	100
Shipping and disposal of F002 wastes	9,500
Shipping and disposal of U223 wastes	35,000
Sample soil underlying storage pad	6,000
Inspection and certification by licensed professional engineer	240
Sub Total	$51,000
If necessary to remove concrete/asphalt pad shipping and disposal of decontaminated pad	10,000
Excavation of soil	3,000
Shipping and disposal of contaminated soil	6,000
Max Total	$70,000

IX. POST-CLOSURE PLAN [265.118] AND
POST-CLOSURE COST ESTIMATE [265.144]

Due to the nature of this facility and its closure plan, neither post-closure plans nor post-closure cost estimates are required. All wastes will be removed from site.

* Storage pad will be triple rinsed with isocyanate neutralization solution. The spent isocyanate neutralization will be non hazardous, non toxic and will be discharged to Troy POTW.

CLOSURE AND POST-CLOSURE PLAN

HAZARDOUS WASTE MANAGEMENT

STORAGE FACILITIES

BASF WYANDOTTE CORPORATION

WYANDOTTE WORKS

EPA ID NO. MID 064197742

PUBLISHED: 11/80
REVISED: 3/83
REVISED: 4/85

TABLE OF CONTENTS

I. SITE IDENTIFICATION

BASF Wyandotte Corporation
Wyandotte Works
1609 Biddle Avenue
Wyandotte, Michigan 48192

(313) 246-6106

EPA ID No. MID 064197742

Generator and Storage Facility

General Manager: C. W. Axce

Manager, Environmental Protection: H. Dale Roush

II. INTRODUCTION (40 CFR 265.112(a),(b),(d))

a. Document description. This is the closure plan of the Hazardous Waste Management Facility (hereinafter Facility) at BASF Wyandotte Corporation's (BWC's) Wyandotte, Michigan site. This plan must be followed if operations at this site are terminated and the Facility is closed down.

b. Certification and notification of closure (265.112a,d). One hundred-eighty days prior to closure, written notification of closure shall be submitted along with this closure plan to:

Regional Administrator
Region V U.S. EPA
230 South Dearborn St.
Chicago, IL 60604

Upon completion of the closure plan, the Manager, Environmental Protection, with support from Corporate Environmental Protection, shall engage an independent professional engineer (P.E.) licensed to practice engineering by the State of Michigan. The P.E. will be required to review the site's RCRA files and inspect the facility to verify removal of all hazardous wastes in accordance with this closure plan. When satisfied that closure has been completed, the P.E. shall submit a sealed letter to the Regional Administrator certifying that closure has been accomplished. A separate letter of certification must also be submitted to the Regional Administrator signed by an officer of BWC.

c. Date of closure (265.112a4). BWC anticipates closure of this facility in 1985.

III. GENERAL INFORMATION

a. Facility Description

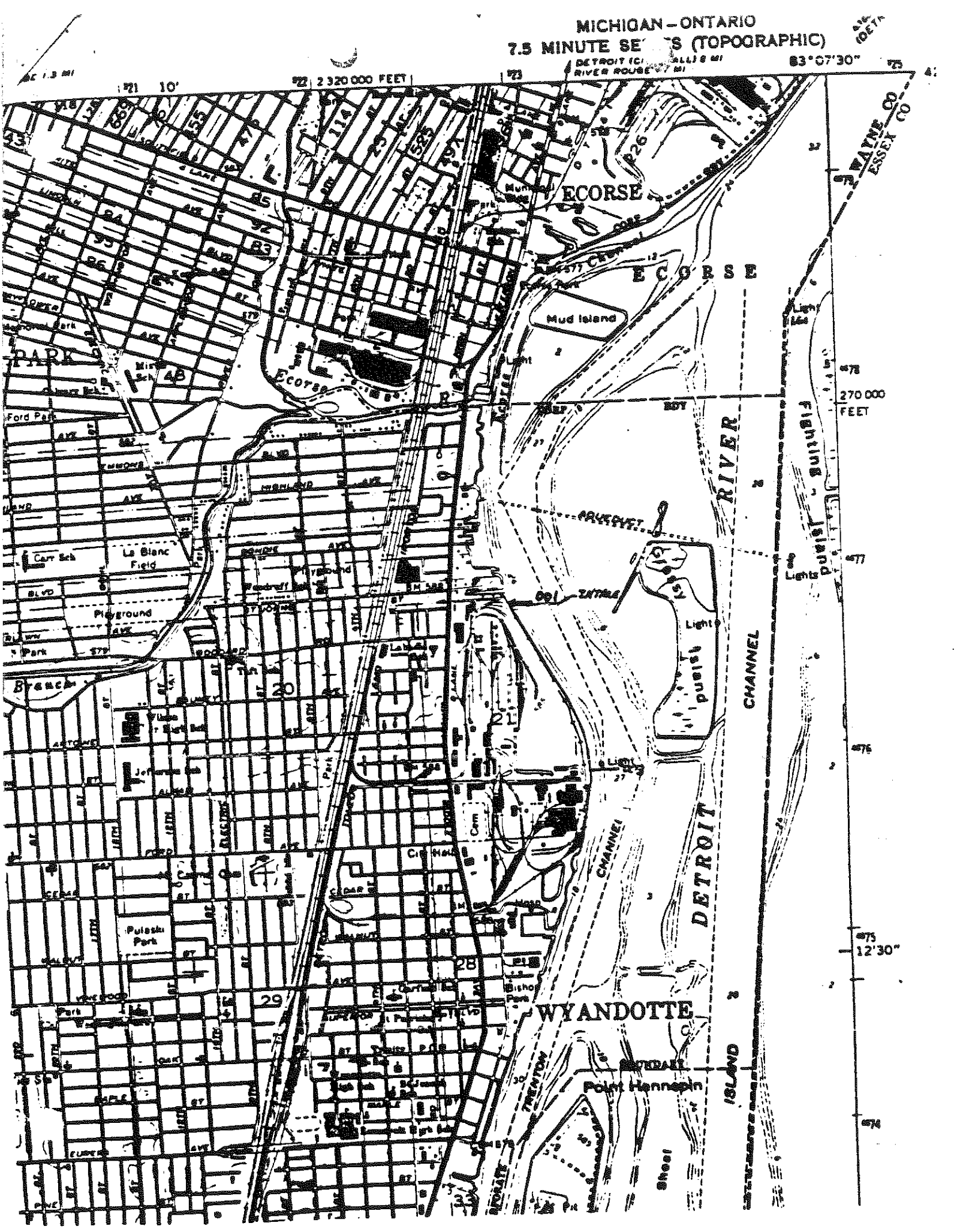
The Wyandotte, Michigan manufacturing facility of BASF Wyandotte Corporation is located at 1609 Biddle Avenue and consists of 230 acres in the northern part of the City of Wyandotte adjacent to the Detroit River.

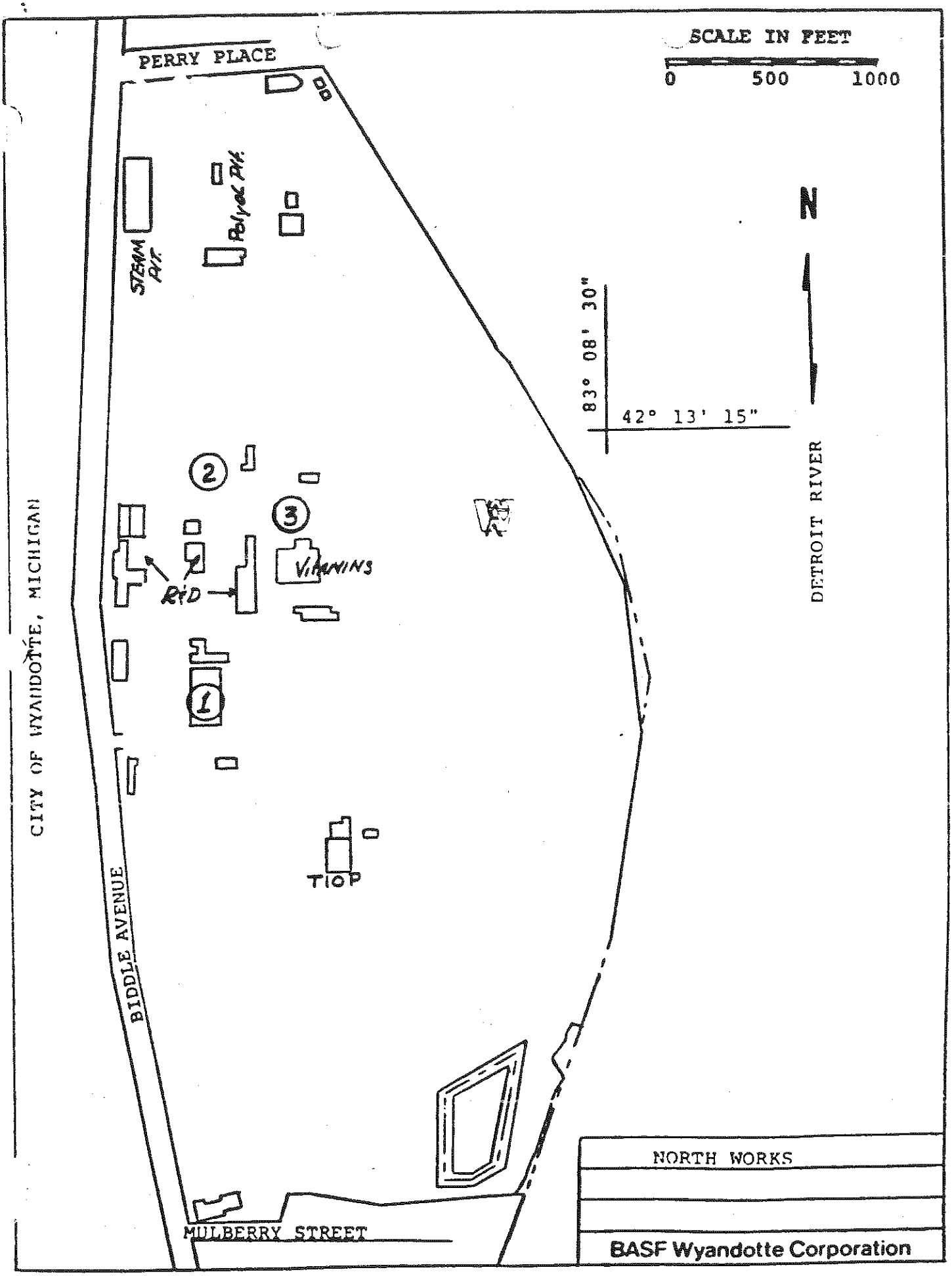
The original manufacturing facility was founded on October 16, 1980, and was known as the Michigan Alkali Company. In 1969, the company (which was then known as Wyandotte Chemicals Corp.) was purchased by BASF AG, a German corporation, and is now known as BASF Wyandotte Corporation. The Corporate Headquarters are located at 100 Cherry Hill Road, Parsippany, New Jersey.

The Wyandotte facility (see attached plot plan) consists of the following manufacturing and/or services area.

- A polyol plant where various urethane polyols are manufactured.
- A Vitamin E plant which produces two grades, pharmaceutical and animal feed, of Vitamin E.
- A Vitamin A Powder plant where imported Vitamin A oil is mixed with cornstarch and spray dried to a final dry product.
- A transparent iron oxide pigments plant where four types of transparent iron oxide are manufactured.
- The Corporate Research & Developmental Laboratories.
- Administrative office buildings.
- A steam generating facility serving site operations.


7 8 9 10 11 12 13 14 15 16 17
OAKLAND
MACOMB
BLOOMFIELD HILLS
TROY
CRANBROOK
BLOOMFIELD TWP
STERLING HGTS.
BIRMINGHAM
CLAWSON
Franklin
Beverly Hills
MADISON HGTS.
ROYAL OAK
LATHRUP VILL.
BERKLEY
DETROIT ZOO
CENTERLINE
HAZEL PK.
SOUTHFIELD
OAK PARK
FERNDALE
STATE FAIRGROUNDS
DETROIT
HIGHLAND PARK
HAMTRAMCK
DEARBORN HGTS.
DEARBORN
GREENFIELD VILLAGE
INKSTER
MELVINDALE
RIVER ROUGE
ALLEN PARK
ECORSE
Windsor, Ontario
Canada
DETROIT RIVER


MICHIGAN – ONTARIO
7.5 MINUTE SERIES (TOPOGRAPHIC)
83°07'30"
2 320 000 FEET
ECORSE
WAYNE CO
ESSEX CO
Mud Island
PARK
Ecorse
Ford Park
La Blanc Field
Playground
Branch
Pulaski Park
Bishop Park
WYANDOTTE
Point Hennepin
ISLAND
DETROIT RIVER
CHANNEL
Light
270 000 FEET
12'30"


SCALE IN FEET
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500
1000
PERRY PLACE
STEAM PLT.
POLYOL PLT.
N
83° 08' 30"
42° 13' 15"
DETROIT RIVER
CITY OF WYANDOTTE, MICHIGAN
2
3
VITAMINS
R'D
1
TIOP
BIDDLE AVENUE
MULBERRY STREET
NORTH WORKS
BASF Wyandotte Corporation

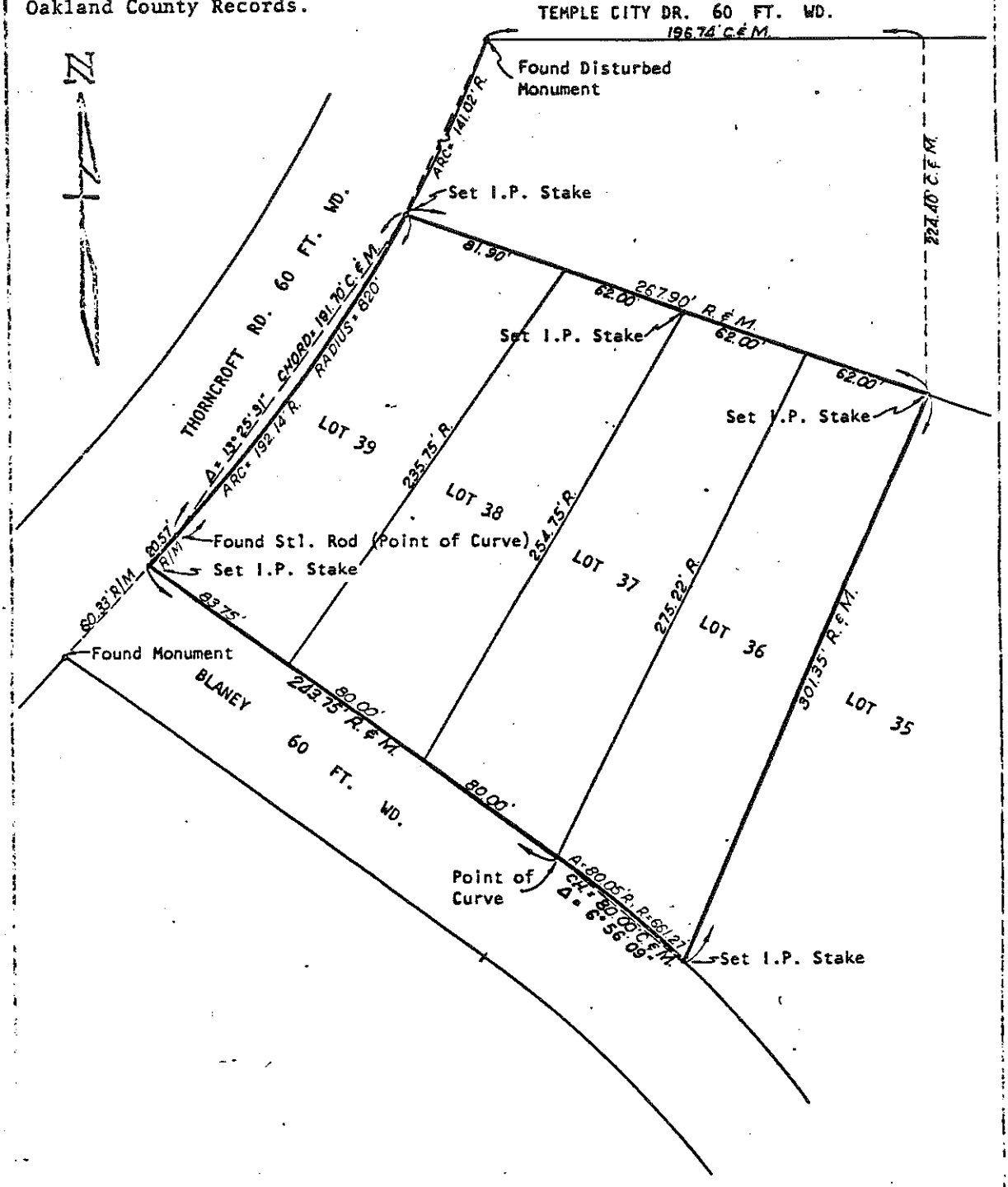
IV. MAXIMUM EXTENT OF OPERATION (265.112a1)

Site hazardous waste is stored in DOT approved containers ranging in size from 5-gallon pails to 55-gallon steel drums placed on curbed concrete pads located in two areas of the site (see appended map). Storate Location No. 1 is an indoor 2,000 sq. ft. area and Location No. 2 is an outdoor 5,000 sq. ft. area.

One (1) bulk storage tank which has not held hazardous waste acetic acid generated in the Vitamins Complex for longer than 90 days. The tank is 4,800 gallons in size and is located inside a concrete diked area north of the plant.

SKETCH OF SURVEY
for
BASF WYANDOTTE CORPORATION
1700 Blaney, Troy, Michigan

Lots 36, 37, 38 and 39, SUPERVISOR'S PLAT NO. 23, a subdivision of part of the S.E. 1/4 of Section 29, T. 2 N., R. 11 E., Troy Township (now City of Troy), Oakland County, Michigan, as recorded in Liber 15 of Plats, Page 58, Oakland County Records.



SURVEYOR'S CERTIFICATE

I, Boyd W. Arthurs, a Registered Surveyor in the State of Michigan, HEREBY CERTIFY that I have surveyed the parcel of land described and delineated hereon, that said plat is a true representation of the survey performed by me, that said survey was performed with an error of closure no greater than 1 in 5000; and that said survey is in compliance with Section 3, Act No. 132, Public Acts of 1970.

LEGEND

R. Recorded

M. Measured

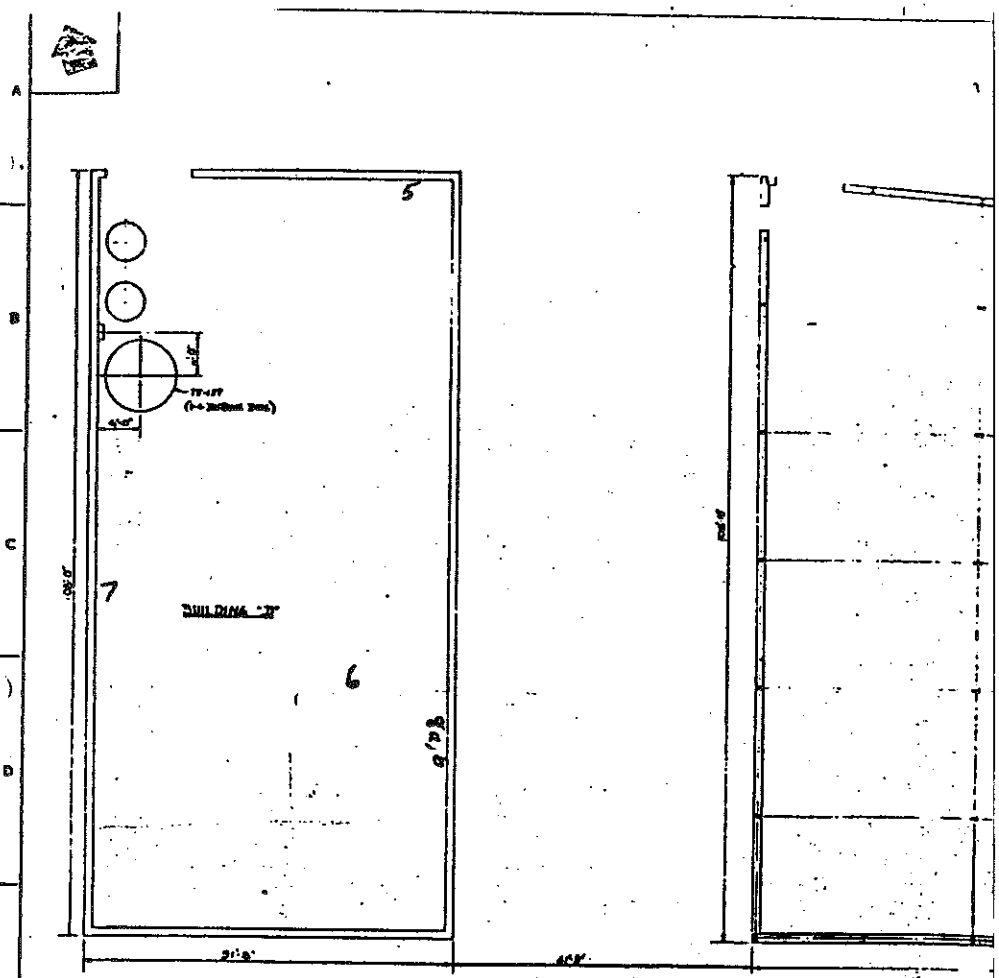
Scale: one inch 60 feet

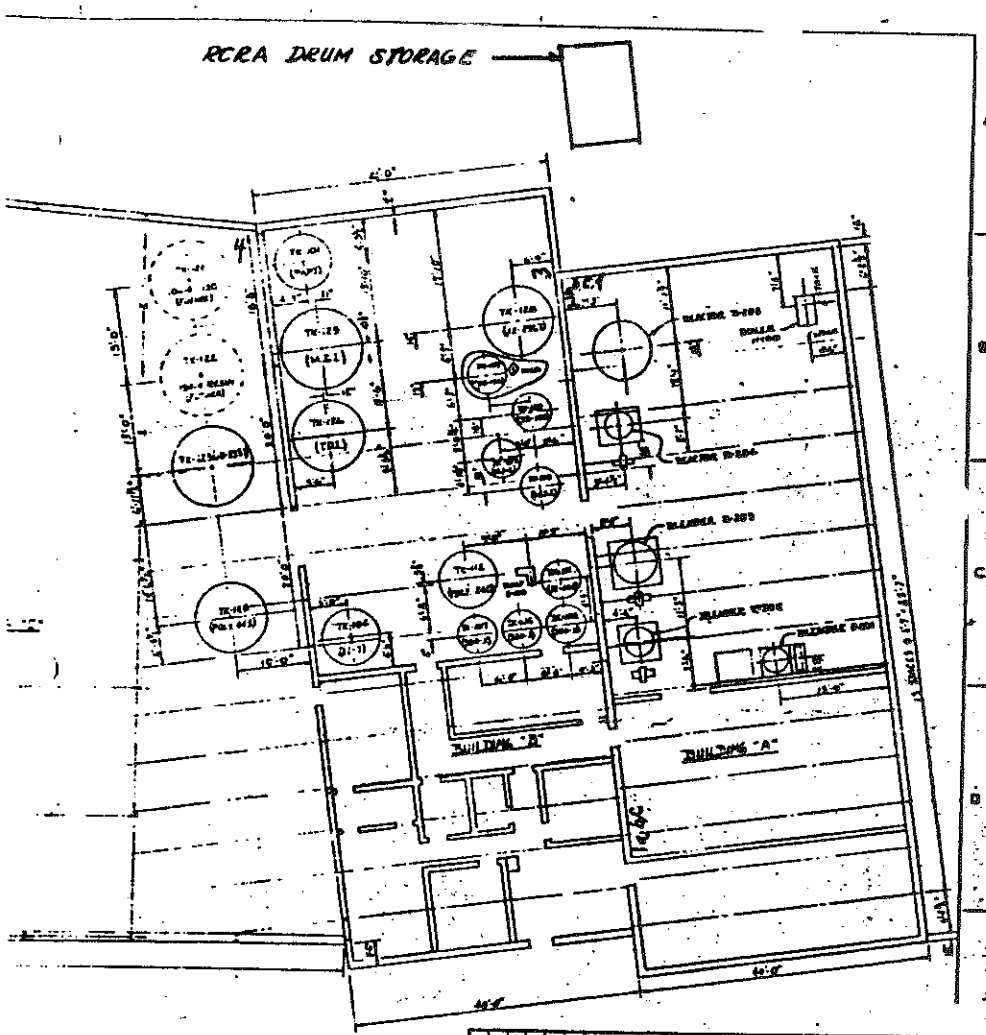
JOB NO. 200-74-a

DATE August 28, 1974

Boyd W. Arthurs

Boyd W. Arthurs
Registered Land Surveyor No. 11358
2521 West Jefferson, P.O. 266
Trenton, Michigan 48183

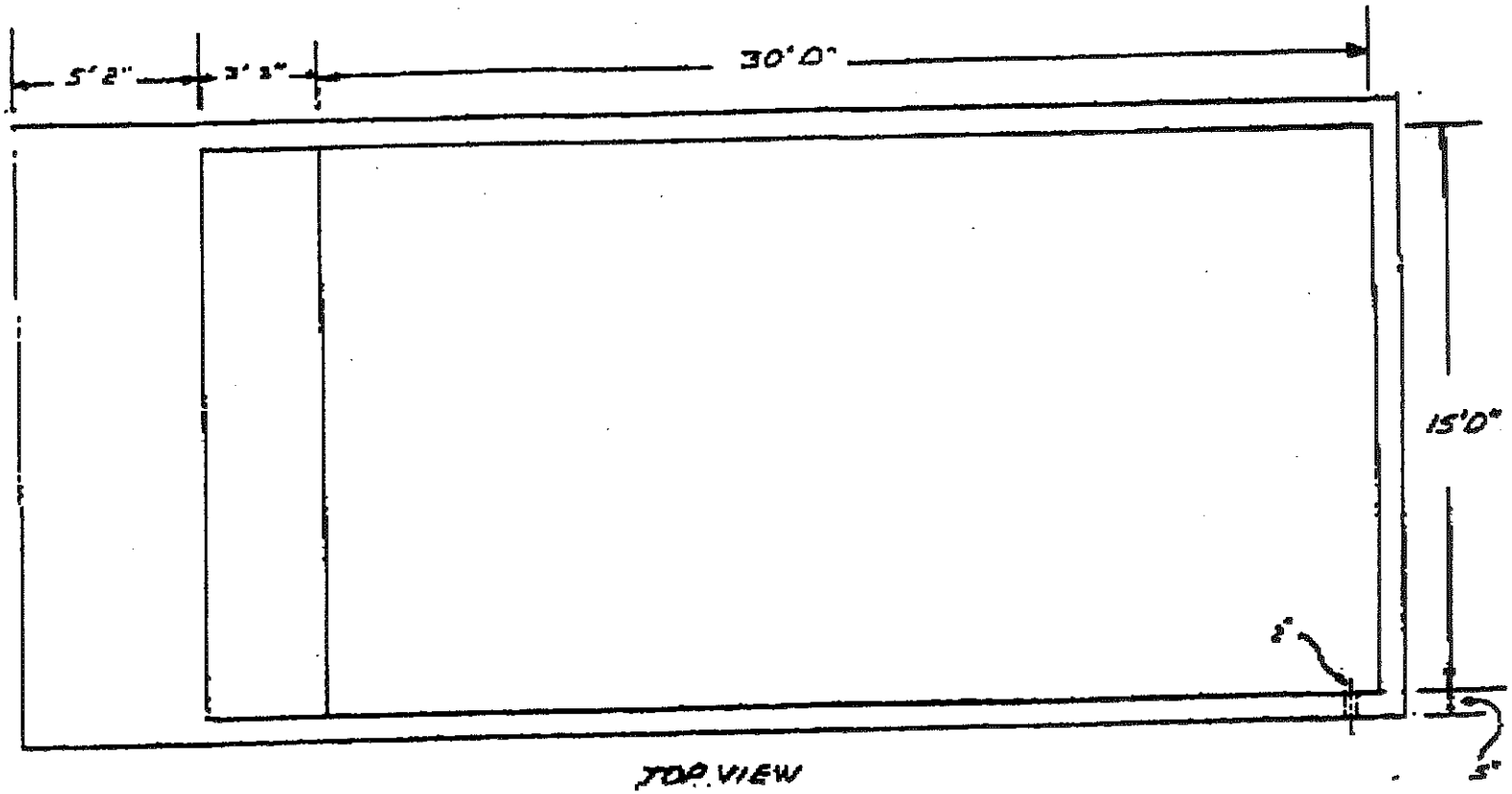




Troy Plant

BASF Wyandotte Corporation	GENERAL ARRANGEMENT - URETHANE SYSTEMS EXPANSION	29901

HAZARDOUS WASTE DRUM DIKE



TOP VIEW

IV. MAXIMUM EXTENT OF OPERATION (265.112a1)

The container storage area consists of a continuously poured rectangular cement slab, 15 ft. x 30 ft. in size. Surrounding the perimeter is a 7" curb capable of containing any potential spill. Accumulated rain water can be drained from within the enclosure through a 2" manual drain valve which is kept in a closed and padlocked position when not in use.

V. ESTIMATE OF MAXIMUM WASTE IN STORAGE (265.112a2)

This facility has not actively stored hazardous waste on site since 1984.

V. ESTIMATE OF MAXIMUM WASTE IN STORAGE (265.112a(2))

Storage Area No. 1 (200 55-gal. drum capacity)	EPA Hazardous Waste No.
Waste Resins	F002
Isocyanate	D002
Flammable Solvents	D001
Solid Urea	D002
Pyridine Mixture	D001
Amines	D001, D002
Isocyanates & Solvents	D001, D002
Laboratory Solvents	D001
Methanol	F003

Storage Area No. 2 (200 55-gal. drum capacity)	
Waste Non-chlorinated Solvents	D001
Amines	D001, D002
Pyridine Mixture	D001
Aromatic Solvents	D001
Solvent/Polyol/Water	D001
Plant Solvents	D001
Toluenediamine	U221
Chlorinated Solvents	F002

Storage Area No. 3 (4800-gal. bulk tank)	
Waste Acetic Acids	D001, D002

VI. CLOSURE PLAN (265.112a(3))

BWC has recently constructed a new hazardous waste storage area, No. 1 (see plot plan). It will be used as a short-term (< 90 days) storage area for containerized (5 - 55-gallon drums) waste only.

Interim authorization for operating a liquid hazardous waste incinerator under RCRA has not been required by the site. Interim authorization to operate a RCRA incinerator can be withdrawn.

Interim authorization to store bulk hazardous waste in stationary tank (Area 3) has never been needed or used. BWC requests this provision also be withdrawn.

BWC intends to proceed with closure of Hazardous Waste Storage Area No. 2. The outside storage pad will continue to be used for other storage purposes and will not be removed. BWC will remove all hazardous waste stored for more than 90 days and verify through visual inspection that the concrete pad is clean.

In the unlikely case of any positive proof of any spills or leaks discovered or created upon removal of these wastes, samples will be taken and analyzed for parameters of specific waste types stored to determine the presence of contamination on the storage pad, the soil and, if necessary, in groundwater. EPA approved sampling and analytical methods will be used. Spilled material would be cleaned up by adding adsorbent material such as "vermiculite" or "oil dry" (if needed) and shoveling material into a sound container for disposal at a licensed facility. If the spill or leak occurred from a defective drum, the remaining contents of that drum would also be transferred to a sound container for disposal. Any contaminated soil would be disposed of in a similar manner.

VII. CLOSURE SCHEDULE (265.112a3,4)

Step	Time Required	Equipment and/or Special Provisions
Check inventory of waste containers and tanks.	1 day	Count drums and cross-check against log inventory.
Contact approved and licensed hauler and disposal facility to schedule shipment.	60 days	Contracts in place. Specific time required dependent on disposal facility schedule. Incineration is preferred method of disposal.
Visually inspect storage areas and/or empty tank.	1 day	Any waste residue remaining on concrete pad would be obvious to visual inspection.
Inspect storage pad and/or tank to assure effective decontamination.	2 hours	BWC Environmental Protection personnel.
Schedule site inspection and certification by Michigan Licensed Professional Engineer	5 days	

VIII. COST ESTIMATE FOR CLOSURE (265.142)

Description of Expenditures	$ Cost
Labor - 8 manhours @ $25/hr. to decontaminate storage pad and/or tank	2,000
Cleaning supplies	500
Shipping of 400 - 55-gallon drums (maximum inventory) to Licensed Incinerator facility.	9,000
Disposal of 400 - 55-gallon drums at Licensed Incinerator	30,000
Shipping of bulk hazardous waste tank 4,800 gallons (maximum contents).	2,500
Disposal of bulk hazardous tank contents	7,500
Inspection and Certification: A Licensed Professional Engineer for 16 hours at $50/hour.	1,000
	52,500

IX. POST CLOSURE PLAN (265.118) and POST CLOSURE COST ESTIMATE (265.144)

Due to the nature of the facility and its closure plan, neither post-closure plans nor post-closure cost estimates are required.

CLOSURE AND POST-CLOSURE PLAN

HAZARDOUS WASTE MANAGEMENT

STORAGE FACILITIES

BASF WYANDOTTE CORPORATION

WYANDOTTE WORKS

EPA ID NO. MID 064197742

PUBLISHED: 11/80
REVISED: 3/83
REVISED: 4/85

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BASF Wyandotte Corporation
Wyandotte Works
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(313) 246-6106

EPA ID No. MID 064197742

Generator and Storage Facility

General Manager: C. W. Axce

Manager, Environmental Protection: H. Dale Roush

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Region V U.S. EPA
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c. Date of closure (265.112a4). BWC anticipates closure of this facility in 1985.

III. GENERAL INFORMATION

a. Facility Description

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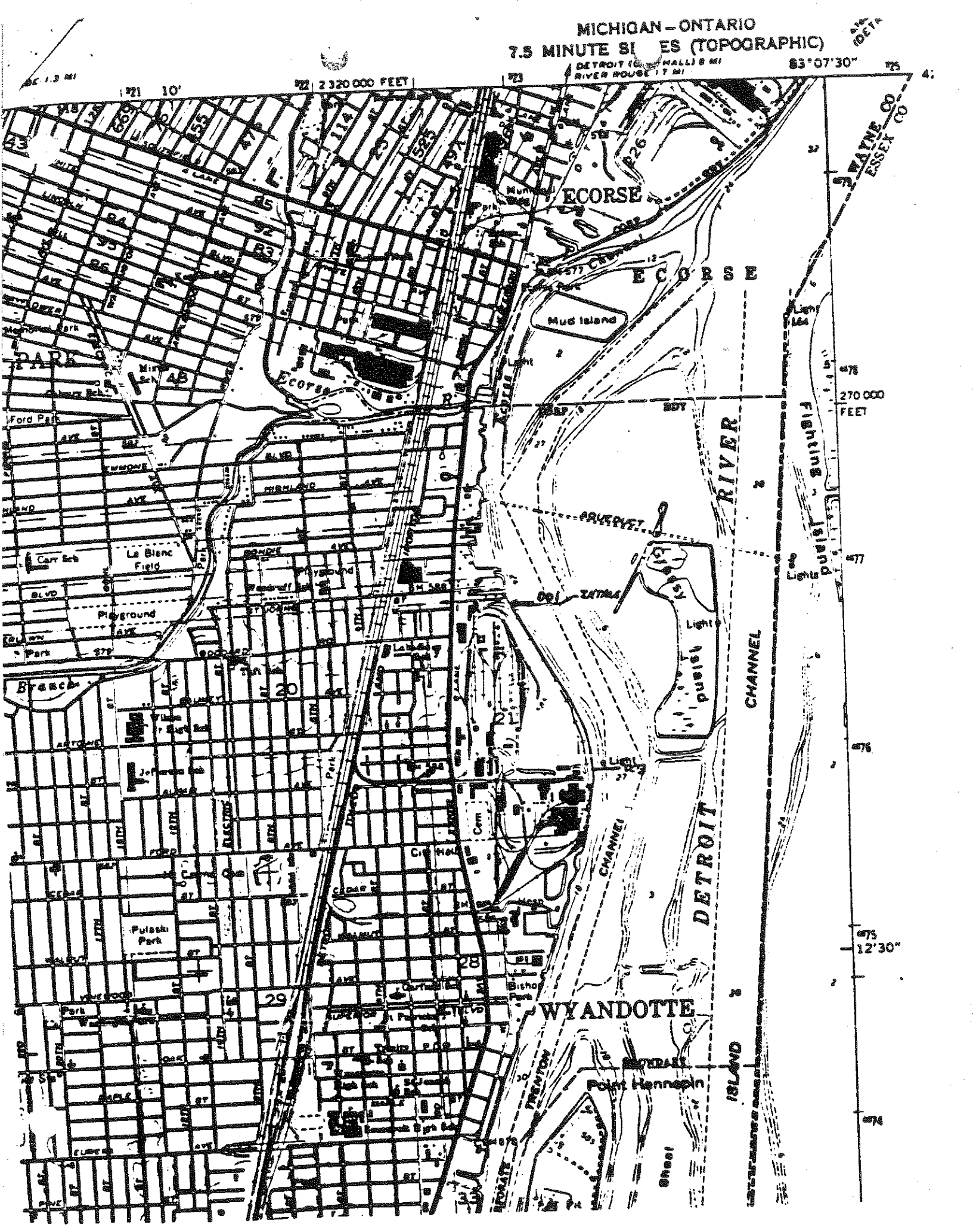
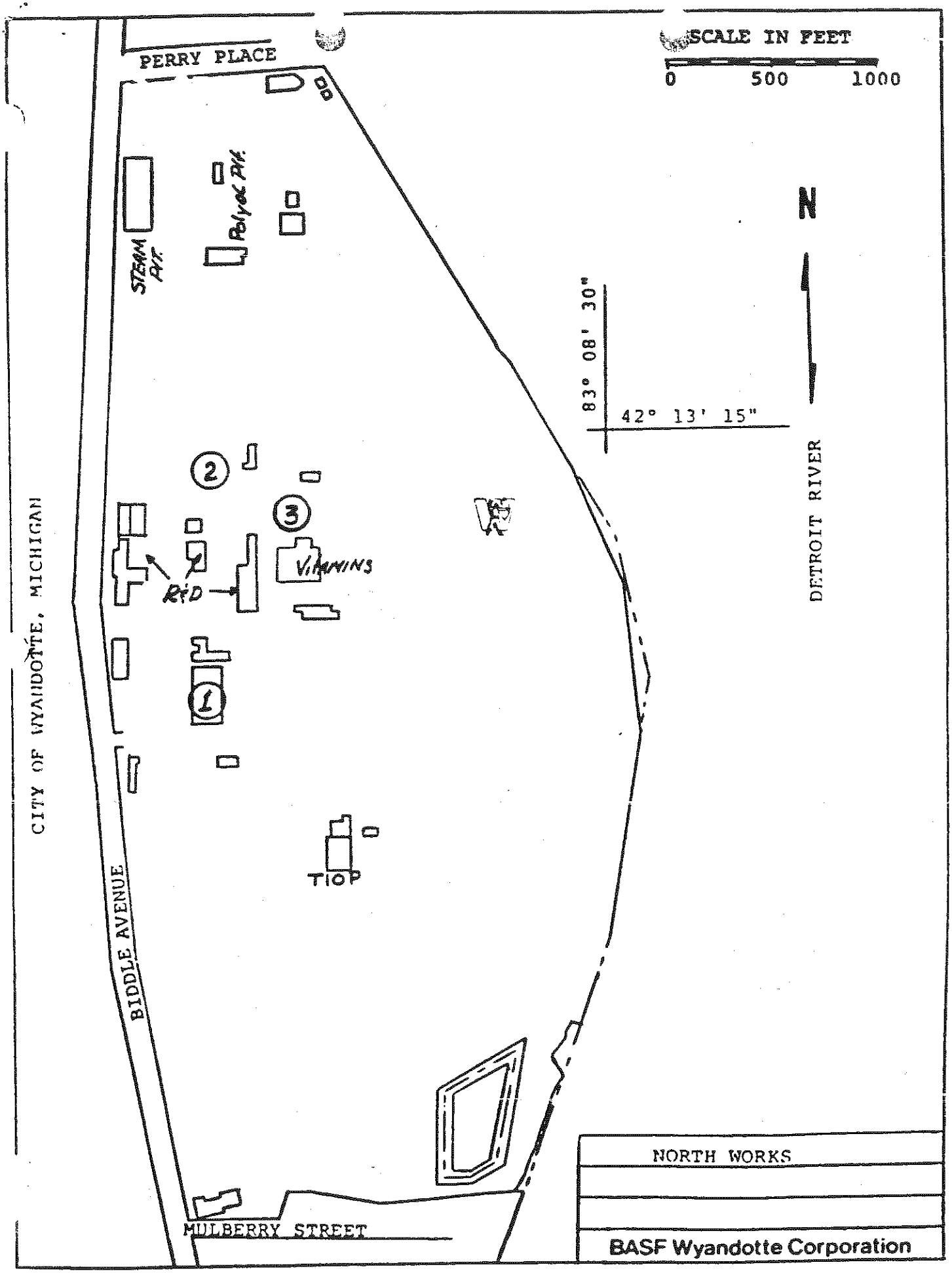
- A Vitamin A Powder plant where imported Vitamin A oil is mixed with cornstarch and spray dried to a final dry product.
- A transparent iron oxide pigments plant where four types of transparent iron oxide are manufactured.
- The Corporate Research & Developmental Laboratories.
- Administrative office buildings.
- A steam generating facility serving site operations.


MICHIGAN – ONTARIO
7.5 MINUTE SERIES (TOPOGRAPHIC)
83°07'30"
2 320 000 FEET
ECORSE
WAYNE CO
ESSEX CO
Mud Island
Ecorse Creek
Ford Park
La Blanc Field
Playground
Jefferson
Pulaski Park
Bishop Park
Carfield
Point Hennepin
WYANDOTTE
DETROIT RIVER
CHANNEL
Fighting Island
Light 164
Light 165
Light 166
Light 167
270 000 FEET
12'30"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PERRY PLACE
STEAM PIT
POLYOL PIT
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83° 08' 30"
42° 13' 15"
DETROIT RIVER
CITY OF WYANDOTTE, MICHIGAN
2
3
VITAMINS
REID
1
TIOP
BIDDLE AVENUE
MULBERRY STREET
NORTH WORKS
BASF Wyandotte Corporation

IV. MAXIMUM EXTENT OF OPERATION (265.112a1)

Site hazardous waste is stored in DOT approved containers ranging in size from 5-gallon pails to 55-gallon steel drums placed on curbed concrete pads located in two areas of the site (see appended map). Storate Location No. 1 is an indoor 2,000 sq. ft. area and Location No. 2 is an outdoor 5,000 sq. ft. area.

One (1) bulk storage tank which has not held hazardous waste acetic acid generated in the Vitamins Complex for longer than 90 days. The tank is 4,800 gallons in size and is located inside a concrete diked area north of the plant.

V. ESTIMATE OF MAXIMUM WASTE IN STORAGE (265.112a(2))

Storage Area No. 1 (200 55-gal. drum capacity)	EPA Hazardous Waste No.
Waste Resins	F002
Isocyanate	D002
Flammable Solvents	D001
Solid Urea	D002
Pyridine Mixture	D001
Amines	D001, D002
Isocyanates & Solvents	D001, D002
Laboratory Solvents	D001
Methanol	F003

Storage Area No. 2 (200 55-gal. drum capacity)	
Waste Non-chlorinated Solvents	D001
Amines	D001, D002
Pyridine Mixture	D001
Aromatic Solvents	D001
Solvent/Polyol/Water	D001
Plant Solvents	D001
Toluenediamine	U221
Chlorinated Solvents	F002

Storage Area No. 3 (4800-gal. bulk tank)	
Waste Acetic Acids	D001, D002

VI. CLOSURE PLAN (265.112a(3))

BWC has recently constructed a new hazardous waste storage area, No. 1 (see plot plan). It will be used as a short-term (< 90 days) storage area for containerized (5 - 55-gallon drums) waste only.

Interim authorization for operating a liquid hazardous waste incinerator under RCRA has not been required by the site. Interim authorization to operate a RCRA incinerator can be withdrawn.

Interim authorization to store bulk hazardous waste in stationary tank (Area 3) has never been needed or used. BWC requests this provision also be withdrawn.

BWC intends to proceed with closure of Hazardous Waste Storage Area No. 2. The outside storage pad will continue to be used for other storage purposes and will not be removed. BWC will remove all hazardous waste stored for more than 90 days and verify through visual inspection that the concrete pad is clean.

In the unlikely case of any positive proof of any spills or leaks discovered or created upon removal of these wastes, samples will be taken and analyzed for parameters of specific waste types stored to determine the presence of contamination on the storage pad, the soil and, if necessary, in groundwater. EPA approved sampling and analytical methods will be used. Spilled material would be cleaned up by adding adsorbent material such as "vermiculite" or "oil dry" (if needed) and shoveling material into a sound container for disposal at a licensed facility. If the spill or leak occurred from a defective drum, the remaining contents of that drum would also be transferred to a sound container for disposal. Any contaminated soil would be disposed of in a similar manner.

VII. CLOSURE SCHEDULE (265.112a3,4)

Step	Time Required	Equipment and/or Special Provisions
Check inventory of waste containers and tanks.	1 day	Count drums and cross-check against log inventory.
Contact approved and licensed hauler and disposal facility to schedule shipment.	60 days	Contracts in place. Specific time required dependent on disposal facility schedule. Incineration is preferred method of disposal.
Visually inspect storage areas and/or empty tank.	1 day	Any waste residue remaining on concrete pad would be obvious to visual inspection.
Inspect storage pad and/or tank to assure effective decontamination.	2 hours	BWC Environmental Protection personnel.
Schedule site inspection and certification by Michigan Licensed Professional Engineer	5 days	

VIII. COST ESTIMATE FOR CLOSURE (265.142)

Description of Expenditures	$ Cost
Labor - 8 manhours @ $25/hr. to decontaminate storage pad and/or tank	2,000
Cleaning supplies	500
Shipping of 400 - 55-gallon drums (maximum inventory) to Licensed Incinerator facility.	9,000
Disposal of 400 - 55-gallon drums at Licensed Incinerator	30,000
Shipping of bulk hazardous waste tank 4,800 gallons (maximum contents).	2,500
Disposal of bulk hazardous tank contents	7,500
Inspection and Certification: A Licensed Professional Engineer for 16 hours at $50/hour.	1,000
	52,500

IX. POST CLOSURE PLAN (265.118) and POST CLOSURE COST ESTIMATE (265.144)

Due to the nature of the facility and its closure plan, neither post-closure plans nor post-closure cost estimates are required.

APR 0 3 1985

HAZARDOUS WASTE DIV

MAR 2 9 1985

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

BASF Wyandotte Corporation
1609 Biddle Avenue
Wyandotte, Michigan 48192

Re: Letter of Warning
BASF Wyandotte Corporation
MID 064 197 742

Gentlemen:

On January 23, 1985, the Michigan Department of Natural Resources (MDNR) requested the BASF Wyandotte Corporation to submit a copy of their closure plan. To date, MDNR has not received the corporation's closure plan.

The MDNR is obligated to review the adequacy of closure plans under 40 CFR 265 Subpart G through the FY 85 Hazardous Waste Cooperative Agreement with the U.S. Environmental Protection Agency (U.S. EPA).

Because the BASF Wyandotte Corporation failed to submit a copy of their closure plan to MDNR, the U.S. EPA is requesting that BASF Wyandotte Corporation provide our Agency with a copy of the closure plan. Failure to provide this plan within 30 days of receipt of this notice will subject the facility to further enforcement action. Please forward a copy of an up-to-date closure plan to:

U.S. Environmental Protection Agency
Hazardous Waste Enforcement Branch
RCRA Enforcement Section - 5HE-12
230 South Dearborn Street
Chicago, Illinois 60604

Two additional copies of the closure plan should also be sent to:

Michigan Department of Natural Resources
Hazardous Waste Division
15500 Sheldon Road
Northville, Michigan 48167

If you have any questions, please contact Ms. Sharon R. Johnson of my staff at (312) 886-4592.

Sincerely yours,

William E. Muno, Chief
RCRA Enforcement Section

cc: J. Bohunsky, MDNR
B. Okwumbua, MDNR
S.E. District Office

Doc file

BASF Wyandotte Corporation

100 Cherry Hill Road
P.O. Box 181
Parsippany, N.J. 07054
201/263-5280

Keith Fry
Director
Corporate Environmental Protection

Certified Mail
P35 1210857
Return Receipt Requested

March 15, 1985

Mr. Thomas Golz
U. S. EPA Region V
230 South Dearborn
Chicago, Il. 60604

Re: Financial Requirements for Hazardous Waste Treatment, Storage, and Disposal Facilities

Dear Mr. Golz,

BASF Wyandotte Corporation (BWC) owns and operates four (4) hazardous waste storage facilities in Region V. These facilities are located in Wyandotte, Mi. (EPA ID Number MID 064197742); Troy, Mi. (EPA ID Number MID 057007478); and Holland, Mi. (EPA ID Numbers MID 048223986, MID 006411953). BWC has estimated the cost of closure for these facilities along with all other BWC facilities and has obtained financial assurance of the ability to meet these costs. BWC hereby submits an originally signed copy of the letter from BWC's Chief Financial Officer demonstrating financial ability to close and care for BWC's hazardous waste facilities as specified in 40 CFR 264.143.

Should you have any questions on this matter, please contact me.

Very truly yours,

BASF Wyandotte Corporation

Keith Fry

Keith Fry

KF.FR2
attachment
cc: RM
HDR
PGW
CDW

BASF Wyandotte Corporation

100 Cherry Hill Road
P.O. Box 181
Parsippany, N.J. 07054
201/263-0200

March 1, 1985

Region V
U.S. Environmental Protection Agency
Hazardous Waste Program, Financial Assurance
111 Jackson Boulevard
16th Floor
Chicago, IL 60604

Dear Sir:

I am the chief financial officer of BASF Wyandotte Corporation. This letter is in support of this firm's use of the financial test to demonstrate financial assurance, as specified in Subpart H of 40 CFR Parts 264 and 265.

1. This firm is the owner or operator of the following facilities for which financial assurance for closure or post-closure care is demonstrated through the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure and/or post-closure cost estimates covered by the test are shown for each facility:

EPA IDENTIFICATION NUMBER	NAME/ADDRESS	CURRENT CLOSURE ("C") AND/OR POST-CLOSURE ("P-C") COST ESTIMATES
REGION III		
WVD00068601	Huntington 24th. St. & 5th Avenue Huntingtion, W. V. 27522	$17,690 ("C")
REGION V		
MID064197742	Wyandotte 1609 Biddle Avenue Wyandotte, MI 48192	52,500 ("C")
MID057007478	Troy 1700 Blaney Drive Troy, MI 48084	3,880 ("C")

EPA IDENTIFICATION NUMBER	NAME/ADDRESS	CURRENT CLOSURE ("C") AND/OR POST-CLOSURE ("P-C") COST ESTIMATES
MID006411953	Holland 491 Columbia Avenue Holland, MI 49423	$ 51,060 ("C")
MID048223986	Holland 471 Howard Avenue Holland, MI 49423	33,440 ("C")

2. This firm guarantees, through the corporate guarantee specified in Subpart H of 40 CFR Parts 264 and 265, the closure or post-closure care of the following facilities owned or operated by subsidiaries of this firm. The current cost estimates for the closure or post-closure care so guaranteed are shown for each facility: None.

3. In States where EPA is not administering the financial requirements of Subpart H of 40 CFR Parts 264 or 265, this firm, as owner or operator or guarantor, is demonstrating financial assurance for the closure or post-closure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure and/or post-closure cost estimates covered by such a test are shown for each facility:

EPA IDENTIFICATION NUMBER	NAME/ADDRESS	CURRENT CLOSURE ("C") AND/OR POST-CLOSURE ("P-C") COST ESTIMATES
REGION IV		
SCD077990638	Whitestone Box 2108 Spartanburg, S.C. 29302	$ 29,000 ("C")
REGION VI		
LAD040776809	Geismar River Road Geismar, LA 70734	218,540 ("C")
REGION IX		
CAT000611647	Dinuba 10181 Avenue 416 Dinuba, CA 93618	21,570 ("C")

4. This firm is the owner or operator of the following hazardous waste management facilities for which financial assurance for closure or, if a disposal facility, post-closure care, is not demonstrated either to EPA or a State through the financial test or any other financial assurance mechanism specified in Subpart H of 40 CFR Parts 264 and 265 or equivalent or substantially equivalent State mechanisms. The current closure and/or post-closure cost estimates not covered by such financial assurance are shown for each facility: None.

This firm is not required to file a form 10K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

The fiscal year of this firm ends on December 31. The figures for the following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year, ended December 31, 1984.

ALTERNATIVE I
(000's)

1.	Sum of current closure estimates	$ 428
*2.	Total liabilities	403,036
*3.	Tangible net worth	304,131
*4.	Net worth	306,145
*5.	Current assets	388,736
*6.	Current liabilities	240,911
7.	Net working capital (Line 5 minus Line 6)	147,825
*8.	The sum of net income plus depreciation, depletion and amortization	147,594
*9.	Total assets in U.S. (required only if less than 90% of firm's assets are located in the U.S.)	N/A

		YES	NO
10.	Is Line 3 at least 10 million?	X	
11.	Is Line 3 at least 6 times Line 1?	X	
12.	Is Line 7 at least 6 times Line 1?	X	
*13.	Are at least 90% of firm's assets located in U.S.? (If not, complete Line 14)	X	
14.	Is Line 9 at least 6 times Line 1?	N/A	
15.	Is Line 2 divided by Line 4 less than 2.0?	X	
16.	Is Line 8 divided by Line 2 greater than 0.1?	X	
17.	Is Line 5 divided by Line 6 greater than 1.5?	X	

NOTE: N/A = Not Applicable

I hereby certify that the wording of this letter is identical to the wording specified in 40 CFR 264.151 (f) as such regulations were constituted on the date shown immediately below.

Frederick W. Bernthal
Vice President-Finance
BASF Wyandotte Corporation

FWB/ej

GA21-21
2/22/85

Deloitte
Haskins+Sells

111 Madison Avenue
Post Office Box 2086
Morristown, New Jersey 07960
(201) 540-0940
TWX: 710-986-7462

BASF Wyandotte Corporation
100 Cherry Hill Road
Parsippany, New Jersey 07054

Dear Sirs:

We have examined the consolidated financial statements of BASF Wyandotte Corporation and its subsidiaries for the year ended December 31, 1984 and have issued our report thereon dated February 18, 1985. Our examination was made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. We have not performed any auditing procedures beyond the date of our opinion on the financial statements; accordingly, this report is based on our knowledge as of that date and should be read with that understanding.

At your request, we have performed the procedures enumerated below with respect to the accompanying letter from Frederick W. Bernthal dated March 1, 1985. It is understood that this report is issued for the sole purposes of filing with the Regional Administrators of the Environmental Protection Agency (EPA) in accordance with the requirements of the Resource Conservation and Recovery Act (RCRA) and with such state regulatory bodies as are authorized by the EPA in accordance with state legislation approved by the EPA in substitution of RCRA, and is not to be used for any other purpose. The procedures we performed are summarized as follows:

1. We compared the information included in items 4, 5 and 6 under the caption Alternative 1 in the letter referred to above with the corresponding amounts in the financial statements referred to in the first paragraph.

2. We recomputed from or reconciled to the financial statements referred to in the first paragraph the information included in items 2, 3, 8, 9 and 13 under the caption Alternative 1 in the letter referred to above.

Because the procedures referred to in the preceding paragraphs were not sufficient to constitute an examination made in accordance with generally accepted auditing standards, we do not express an opinion on any of the information or amounts listed under the caption Alternative 1 in the aforementioned letter. In performing the procedures referred to above, however, no matters came to our attention that caused us to believe that the information or amounts included in items 2, 3, 4, 5, 6, 8, 9 or 13 should be adjusted.

Yours truly,

Deloitte Haskins & Sells

March 1, 1985

TABLE OF CONTENTS

Deloitte Haskins+Sells

111 Madison Avenue
Post Office Box 2086
Morristown, New Jersey 07960
(201) 540-0940
TWX: 710-986-7462

ACCOUNTANTS' OPINION

BASF Wyandotte Corporation:

We have examined the consolidated financial statements of BASF Wyandotte Corporation and its subsidiaries as of December 31, 1984 and 1983 and for the years then ended, listed in the foregoing table of contents. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, such consolidated financial statements present fairly the financial position of the Companies at December 31, 1984 and 1983 and the results of their operations and the changes in their financial position for the years then ended, in conformity with generally accepted accounting principles consistently applied during the period except for the changes, with which we concur, in 1984 and 1983 in the method of computing depreciation on existing manufacturing facilities as described in Note 11 to the consolidated financial statements.

Deloitte Haskins & Sells

February 18, 1985

BASF WYANDOTTE CORPORATION AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS
DECEMBER 31, 1984 and 1983
(Dollars in thousands)

-ASSETS-	1984	1983
CURRENT ASSETS:		
Cash including time deposits	$ 15,067	$ 32,645
Trade receivables, less allowance for doubtful accounts ($9,266 in 1984 and $9,306 in 1983) (Note 7)	153,219	148,545
Inventories (Notes 1 and 2)	164,517	144,606
Prepaid expenses and other receivables (Note 7)	53,266	17,897
Federal and state tax refunds	2,667	2,862
Total current assets	388,736	346,555
PROPERTY, PLANT, EQUIPMENT AND INTANGIBLE ASSETS-		
At cost (Notes 1 and 3):		
Land and buildings	129,729	121,698
Machinery and equipment	574,223	541,130
Construction in progress	41,407	18,613
Intangible assets	2,020	2,020
	747,379	683,461
Less accumulated depreciation and amortization	435,736	312,522
Property, plant, equipment and intangible assets - net	311,643	370,939
OTHER ASSETS	8,802	8,901
TOTAL	$709,181	$726,395

LIABILITIES AND SHAREOWNER'S -EQUITY-	1984	1983
CURRENT LIABILITIES:		
Trade notes and accounts payable (Note 7)	$145,546	$149,343
Short-term debt including current portion of long-term debt (Note 7)	24,742	30,889
Accrued expenses (Note 7)	40,201	47,2[illegible]
Accrued taxes on income	9,220	7,460
Accrued pension, interest and other liabilities (Note 7)	21,202	22,315
Total current liabilities	240,911	257,264
LONG-TERM DEBT (Note 3)	159,364	160,483
DEFERRED INCOME TAXES (Note 5)	2,761	2,312
SHAREOWNER'S EQUITY:		
Common stock, par value $1.00 authorized 2,000 shares, issued and outstanding 1,270 shares - no change	1	1
Additional paid-in capital - no change	202,230	202,230
Retained earnings (Note 3)	103,914	104,10[illegible]
Total shareowner's equity	306,145	306,336
TOTAL	$709,181	$726,395

See Notes to Consolidated Financial Statements

BASF WYANDOTTE CORPORATION AND SUBSIDIARIES

STATEMENTS OF CONSOLIDATED OPERATIONS
FOR THE YEARS ENDED DECEMBER 31, 1984 AND 1983
(Dollars in thousands)

	1984	1983
REVENUES:		
Net sales, royalties and operating revenues	$1,184,465	$1,033,708
Interest	10,523	4,448
Total revenues	1,194,988	1,038,156
COSTS AND EXPENSES:		
Cost of products sold	934,760	837,628
Selling, administrative and general expenses	146,275	148,350
Interest (Note 8)	19,042	20,233
Total costs and expenses	1,100,077	1,006,211
INCOME FROM CONTINUING OPERATIONS BEFORE PROVISION FOR TAXES ON INCOME	94,911	31,945
PROVISION FOR TAXES ON INCOME (Note 5)	43,452	8,634
INCOME FROM CONTINUING OPERATIONS	51,459	23,311
REVERSAL OF RESERVE FOR DISPOSAL OF DISCONTINUED SEGMENT (Net of Applicable Income Taxes of $1,150) (Note 10)	1,350	-
CUMULATIVE EFFECT OF A CHANGE IN ACCOUNTING PRINCIPLE (Net of Applicable Income Tax benefits of $29,133 in 1984 and $5,572 in 1983) (Note 11)	(34,200)	(6,542)
NET INCOME	$ 18,609	$ 16,769

See Notes to Consolidated Financial Statements

BASF WYANDOTTE CORPORATION AND SUBSIDIARIES

STATEMENTS OF CONSOLIDATED RETAINED EARNINGS
FOR THE YEARS ENDED DECEMBER 31, 1984 and 1983
(Dollars in thousands)

	1984	1983
Balance, January 1	$104,105	$ 99,836
Net Income	18,609	16,769
	122,714	116,605
Less - Cash Dividends Paid or Declared	18,800	12,500
Balance December 31	$103,914	$104,105

See Notes to Consolidated Financial Statements

BASF WYANDOTTE CORPORATION AND SUBSIDIARIES

STATEMENTS OF CHANGES IN CONSOLIDATED FINANCIAL POSITION
FOR THE YEARS ENDED DECEMBER 31, 1984 AND 1983
(Dollars in thousands)

	1984	1983
FUNDS PROVIDED FROM OPERATIONS:		
Income from operations exclusive of the discontinued segment.	$ 17,259	$ 16,769
Non-Cash Charges (credits):		
Depreciation	122,837	74,080
Increase in deferred taxes	449	2,312
Loss on disposal of property, plant, and equipment	2,103	8,386
Capitalized Interest - Net of amortization	3,683	(173)
Total from operations exclusive of the discontinued segment	146,331	101,374
Discontinued segment - Reversal of reserve for disposal of discontinued segment	1,350	-
Total from operations	147,681	101,374
CERTAIN USES OF FUNDS AND CHANGES OF WORKING CAPITAL ITEMS:		
Additions to property, plant, equipment and intangible assets	69,327	36,554
Increase (Decrease) in other assets	(99)	5,447
Increase in trade receivables	4,674	9,539
Increase in inventories	19,911	6,661
(Increase) Decrease in trade notes and accounts payable	3,797	(45,810)
Decrease in accrued liabilities	6,409	1,650
(Decrease) Increase in other current assets	35,174	(3,466)
Dividends Paid	18,300	12,500
Decrease in long-term reserves	-	11,490
Total	157,993	34,565
NET FUNDS PROVIDED BEFORE FINANCING	(10,312)	66,809
FINANCING:		
Borrowings of long-term debt	3,300	7,000
Repayment of long-term debt	(5,595)	(61,630)
Increase (Decrease) in short-term debt	(4,971)	6,887
Total financing	(7,266)	(47,743)
NET INCREASE (DECREASE) IN CASH AND TIME DEPOSITS	$(17,578)	$ 19,066

See Notes to Consolidated Financial Statements

BASF WYANDOTTE CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEARS ENDED DECEMBER 31, 1984 AND 1983
(Dollars in thousands)

1. ACCOUNTING POLICIES:

Principles of Consolidation

The consolidated financial statements include the accounts of all wholly-owned subsidiaries. Material inter-company accounts and transactions have been eliminated in consolidation.

Inventories

Inventories are stated at the lower of cost or market. Cost for inventories, other than factory supplies, is determined on the last-in, first-out (LIFO) method. Cost for factory supplies is determined on the first-in, first-out (FIFO) method. Market represents the lower of replacement cost or realizable value less selling and distribution expenses.

Depreciation and property taxes have been consistently excluded from the valuation of inventories.

Depreciation

Depreciation of property, plant and equipment is computed based on the estimated useful lives of the various classes of assets using either the straight-line or accelerated method. As of January 1, 1983, the depreciation method was changed from the straight-line to an accelerated method for certain existing manufacturing facilities. As of January 1, 1984 the depreciation method for the remaining manufacturing facilities was changed from the straight-line to an accelerated method (See Note 11).

Pension Plans

The Corporation's policy is to provide for normal costs, interest on unfunded prior service costs and amortization of unfunded prior service cost over a period not exceeding 30 years. Generally, the Corporation's policy is to fund pension costs accrued.

Income Tax

It is the policy of the Parent Company (BASF America Corporation) to prepare a consolidated Federal tax return and allocate to its subsidiaries that portion of the tax provision equal to what the subsidiaries would have incurred individually.

The Corporation accounts for the investment tax credit on the flow through method.

- Continued -

(Dollars in thousands)

Reclassification

Certain amounts previously reported have been reclassified to conform with the 1984 classifications.

2. INVENTORIES:

It is impractical to separate inventory amounts between raw materials, work-in-process and finished goods due to the use of LIFO valuation pools.

If the Corporation had used the FIFO method to value all inventories, the inventory value would have been higher by $64,552 and $62,556 at December 31, 1984 and 1983, respectively.

During 1983, certain LIFO inventory layers were liquidated which increased net income by $2,919.

3. LONG-TERM DEBT:
Long-term debt at December 31, 1984 and 1983 consisted of the following:

TO OTHERS:	1984	1983
Note payable due in annual installments of $3,000 through 1991, with an interest rate of 7.80% per annum	$22,000	$25,000
Pollution Control and Industrial Development Revenue Bonds maturing on June 1, 1984 and 2000, with an interest rate of 8.00% per annum	10	2,250
Industrial Development Bonds maturing through 1985, with an interest rate of 7.00% per annum	250	425
Pollution Control and Industrial Development Revenue Bonds maturing on June 1, 1985 and 2000, with an interest rate of 8.00% per annum	1,000	1,000
Pollution Control Revenue Bonds series 1977 with maturities from 1993 through 2002, with an interest rate of 6.25% per annum	12,500	12,500
Pollution Control and Industrial Development Revenue Bonds series 1978 with maturities through 1990, with an interest rate of 5.88% per annum	2,310	2,480
Pollution Control Refunding Revenue Bonds series 1982 maturing December 15, 2007, with a variable rate of interest at 68.50% of the Chase Manhattan Bank prime rate per annum	8,200	8,200
Pollution Control Refunding Revenue Bonds Series 1983 maturing December 1, 1996, with a variable rate of interest at 64.00% of the average of the Chase Manhattan Bank & Chemical Bank prime rates per annum	7,000	7,000
Pollution Control Bonds maturing December 1, 2009, with a variable rate of interest of 70.00% of the Dresdner Bank prime rate per annum	3,300	-
Other	13	23
Sub-total	$56,583	$58,878

- Continued -

(Dollars in thousands)

3. LONG-TERM DEBT (Continued)

TO AFFILIATES:	1984	1983
Subordinated term loan with interest at 12.00%, and due September 26, 1986	$ 19,700	$ 19,700
Subordinated term loan with interest at 12.00%, and due March 1, 1988	18,000	18,000
Junior subordinated term loan with interest at 9.50%, and due June 20, 1991	20,000	20,000
Term note payable with interest at 10.50% and due April 1, 1987	29,500	29,500
Term note payable with interest at 12.00%, and due March 1, 1988	20,000	20,000
Sub-total	107,200	107,200
Total	163,783	166,078
Less amount due within one year	4,419	5,595
TOTAL LONG-TERM DEBT	$159,364	$160,483

A loan agreement provides, among other covenants, certain restrictions as to maintenance of working capital and payment of dividends. As of December 31, 1984 and 1983, $64,091 and $64,282 respectively, of retained earnings were available for payment of dividends. The working capital at those dates was substantially in excess of the minimum requirements.

Pollution Control and Industrial Revenue Bonds in the amount of $3,570 and $6,155 as of December 31, 1984 and 1983 respectively, are collateralized by certain facilities on the Corporation's property.

As of December 31, 1984 the Corporation has long-term debt maturing over the next five years as follows:

1985	1986	1987	1988	1989
$4,419	$22,874	$32,670	$41,170	$3,800

4. PENSIONS AND POSTRETIREMENT BENEFITS:

The Corporation has several pension plans covering substantially all employees. Pension expenses for the years ended December 31, 1984 and 1983 were $8,794 and $10,841 respectively. A comparison of the actuarial present value of the benefits and plan net assets, as of the most recent valuation dates are presented below.

	JULY 1, 1984	JULY 1, 1983
Actuarial present value of accumulated plan benefits:		
Vested	$ 73,717	$ 80,485
Nonvested	5,277	6,634
Total	$ 78,994	$ 87,119
Net Assets Available for Benefits	$119,313	$129,022

- Continued -

(Dollars in thousands)

4. PENSIONS AND POSTRETIREMENT BENEFITS (CONTINUED)

The Pension Benefit Guarantee Corporation rates of return used by the Corporation in determining the actuarial present values of vested and non-vested accumulated plan benefits was 9.7% in 1984 and 8.5% in 1983. This change and other minor changes in actuarial assumptions decreased the actuarial present value of accumulated plan benefits by approximately $9,900 in 1984.

The total actuarial liability of the Corporation was $144,303 and $141,093 at the 1984 and 1983 valuation dates respectively.

In addition to providing pension benefits, the Corporation provides certain health care and life insurance benefits for retired employees. Substantially all of the Corporation's employees may become eligible for these benefits upon reaching normal retirement age while working for the Corporation. These benefits are provided through an insurance company whose premiums are based upon the benefits paid during the year. The Corporation expenses the premiums for these postretirement benefits which were approximately $2,500 for 1983 and 1984, as part of the annual insurance premiums.

5. TAXES ON INCOME:

The provision for taxes on income consists of:

	1984	1983
Current Provision	$15,020	$ 750
Long-Term Deferred	449	2,312
	$15,469	$3,062

Deferred taxes result from timing differences in the recognition of revenue and expenses for tax and financial statement purposes.

A reconciliation of the U.S. Corporate tax rate to the effective rate on operations reflected in the accompanying Statements of Consolidated Operations follows:

	RATE OF TAX	
	1984	1983
U.S. Corporate Tax Rate	46%	46%
Investment Tax Credits	(7)	(14)
Realization of Prior Years' Investment Tax Credits	-	(17)
State Income Taxes - net	9	2
Other Items - net	(3)	(1)
Effective Tax Rate	45%	16%

- Continued -

(Dollars in thousands)

6. LEASES:

The Corporation leases office and warehouse space, machinery and equipment, including automobiles and tank cars. These non-cancelable leases are classified as operating leases and expire at various dates through 2001. Certain leases contain renewal options at similar or reduced annual rentals for periods which vary from one month to ten years. Rental expenses for the years ended December 31, 1984 and 1983 amounted to approximately $13,141 and and $14,542 respectively.

As of December 31, 1984 the Corporation had minimum lease commitments as follows:

1985	1986	1987	1988	1989	Remainder	TOTAL
$6,364	$4,222	$3,587	$3,121	$3,010	$4,435	$24,739

7. TRANSACTIONS WITH AFFILIATES:

The Corporation is a wholly-owned subsidiary of BASF America Corporation, which is a wholly-owned subsidiary of BASF Aktiengesellschaft (BASF AG). The Corporation's operations include transactions with the Parent and other affiliates which have been entered into by the companies in compliance with overall policy decisions of the BASF group.

Transactions with affiliates which are not detailed elsewhere in the financial statements are as follows:

	Years Ended December 31,	
	1984	1983
Revenues	$76,208	$ 61,224
Purchases	206,301	207,989
Trade Receivables	10,393	14,104
Prepaid Expense and Other Receivables	48,378	6,220
Trade Notes and Accounts Payable	62,136	86,712
Short-term Debt	240	25,100
Accrued Expenses	1,709	1,688
Accrued Pension, Interest and Other Liabilities	7,751	7,773
Interest Expense	12,244	12,064
Royalty Expense	22,236	17,958
Dividends Paid/Declared	18,800	12,500

8. CAPITALIZED INTEREST:

The Corporation capitalized interest on funds borrowed to finance the construction or acquisition of certain qualifying assets. Capitalized interest amounted to $2,465 and $2,156 for the years ended December 31, 1984 and 1983 respectively.

9. CONTINGENCY:

The Corporation is a party to various legal actions arising in the ordinary course of business. While it is not feasible to predict the ultimate outcome of these actions, it is the opinion of management that the resolution of these matters will not have a material adverse effect on the financial position of the Corporation.

- Continued -

(Dollars in thousands)

10. DISCONTINUED SEGMENT:

During 1980 the Corporation established a plan to abandon, and did abandon, its Electrolytics business in 1983. Accordingly, prior years' Statements of Consolidated Operations were charged and a reserve established for the related estimated losses.

In 1984, an adjustment to the reserve for estimated losses originally provided for this discontinued segment has been credited to income on the Statement of Consolidated Operations.

As a result of the abandonment of the Electrolytics business in 1983, there were no sales applicable to discontinued segments for the year ended December 31, 1984. Sales applicable to discontinued segments for the year ended December 31, 1983 were $26,949.

11. CHANGE IN ACCOUNTING PRINCIPLE AND ESTIMATE:

In order to obtain a better matching of revenue and expense, the Corporation changed, as of January 1, 1983, for certain manufacturing facilities, and as of January 1, 1984, for the remaining manufacturing facilities, from the straight-line to an accelerated method for computing depreciation. Excluding the cumulative effect of the change in accounting principle, made as of January 1, 1983, net income for 1983 was reduced by $719. Excluding the cumulative effect of the change in accounting principle, made as of January 1, 1984, net income for 1984 was reduced by $3,377. If the change in accounting principle, made as of January 1, 1984 had been used in 1983, net income for 1983 would have been further reduced by $4,920.

In 1983, the Corporation also reduced the estimated lives of certain manufacturing facilities. The effect of this change in accounting estimate was to further reduce net income for 1983 by approximately $4,359.

- Concluded -

Doc file

BASF Wyandotte Corporation

100 Cherry Hill Road
P.O. Box 181
Parsippany, N.J. 07054
201/263-5280

Keith Fry
Director
Corporate Environmental Protection

Certified Mail
P35 1210867
Return Receipt Requested

February 7, 1985

Mr. Thomas Golz
US EPA Region V
230 South Dearborn
Chicago, IL 60604

Re: Liability Insurance for Hazardous Waste Storage Facilities

Dear Mr. Golz:

BASF Wyandotte Corporation (BWC) has interim status under RCRA for hazardous waste storage at its facility in Holland, Troy, and Wyandotte, Michigan (EPA ID Numbers MID006411953, MID048223986, MID057007478, and MID064157742). BWC has obtained liability insurance for sudden and accidental occurrences for this site, as required in 40 CFR 265 subpart H. BWC hereby submits a copy of the liability certificate.

Very truly yours,

BASF WYANDOTTE CORPORATION

Keith Fry

Keith Fry

KF/de
2-1-KF9
cc: H.D. Roush
P.G. Webb

HAZARDOUS WASTE FACILITY
CERTIFICATE OF LIABILITY INSURANCE

1. Name of Insurer: Hartford Accident and Indemnity Company
Address of Insurer: 123 William Street
New York, New York 10038

hereby certifies that it has issued liability insurance covering bodily injury and property damage to:

Name of Insured: BASF Wyandotte Corporation
Address of Insured: 100 Cherry Hill Road
Parsippany, New Jersey 07054

in connection with the insured's obligation to demonstrate financial responsibility under 40 CFR 264.147 or 265.147. The coverage applies at (Various Locations - See Below) for "sudden accidental occurrences." The limits of liability are $ 1,000,000 each occurrence and $2,000,000 annual aggregate, exclusive of legal defense costs. The coverage is provided under policy number 10CLRP23921E issued on 1-1-85. The effective date of said policy is 1-1-85.

2. The insurer further certifies the following with respect to the insurance described in Paragraph 1:

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.

(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in 40 CFR 264.147(f) or 265.147(f).

(c) Whenever requested by a Regional Administrator of the U.S. Environmental Protection Agency (EPA), the Insurer agrees to furnish to the Regional Administrator a signed duplicate original of the policy and all endorsements.

(d) Cancellation of the insurance, whether by the Insurer or the insured, will be effective only upon written notice and only after the expiration of sixty (60) days after a copy of such written notice is received by the Regional Administrator(s) of the EPA Region(s) in which the facility(ies) is (are) located.

(e) Any other termination of the insurance will be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the Regional Administrator(s) of the EPA Region(s) in which the facility(ies) is (are) located.

I hereby certify that the wording of this instrument is identical to the wording specified in 40 CFR 264.151(j) as such regulation was constituted on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States.

SCHEDULE

Name of Facility	Address or Location	EPA Identification Number
Holland	491 Columbia Avenue Holland, MI 49423	MID006411953
Holland	471 Howard Avenue Holland, MI	MID048223936
Troy	1700 Blaney Drive Troy, MI 48084	MID057007478
Wyandotte General	1609 Biddle Avenue Wyandotte, MI 48192	MID064197742

Maryellen Hunt
Authorized Representative & Title

Supervising Account Executive

(Type Name) Maryellen Hunt

Name of Insurer Hartford Accident and Indemnity Company

Address of Insurer 123 William Street
New York, New York 10038

BASF CORPORATION CHEMICALS DIVISION

BASF

MID 057 007 472

April 27, 1988

Mr. Steve Sliver
Department of Natural Resources
State of Michigan
Ottawa Street Building
P.O. Box 30028
Lansing, MI 48909

Dear Mr. Sliver:

Attached is the Closure Plan for our facility at 1200 Blaney Drive, Troy, Michigan. It has been revised in accordance with the requirements of R299.9601 of Act 64 and 40 CFR 265 and identifies all steps necessary to close the Hazardous Drum Storage Area located at this facility. A post-closure plan has not been prepared because this is not a disposal facility and all hazardous wastes will be removed during closure.

I trust that this revised plan will meet with your approval. If you have any questions, please call me (313) 591-5562.

Regards,

BASF Corporation Chemical Division

James B. LaPrad
Manufacturing Manager
Urethane Specialties

em

Enclosure

cc: Bill Kraemer, BCH
Ben Okwumabua, DNR
Richard Traub, EPA

13000 Levan, Livonia, Michigan 48150 (313) 591-6200

CLOSURE PLAN

HAZARDOUS WASTE MANAGEMENT

STORAGE FACILITIES

BASF CORPORATION

TROY MICHIGAN FACILITY

EPA ID NO. MID 057007478

Published: 11/80
Revised: 3/83
Revised: 4/85
Revised: 4/88

TABLE OF CONTENTS

I. SITE IDENTIFICATION

BASF Corporation
Troy Michigan Facility
1200 Blaney Drive
Troy, Michigan 48084

(313) 591-5553

EPA ID No. MID 057007478

Generator and Storage Facility

Plant Manager: Rudy Merriweather

Ecology Coordinator: W. Robert

II. INTRODUCTION [40 CFR 265.112(a)(b)(d)]

a. Document Description.

This is the closure plan of the Hazardous Waste Management Facility (hereinafter Facility) at BASF Corporation's (BASF's) Troy, Michigan site. This plan must be followed by the Plant Manager when operations at this site are terminated and the Facility is closed down.

b. Certification and Notification of Closure [265.112(a)(d)].

One hundred eighty days prior to closure, written notification of closure shall be submitted along with this closure plan to:

Michigan Department of Natural Resources
Waste Management Division
Hazardous Waste Permit Section
Ottawa Street Building
P.O. Box 30028
Lansing, MI 48904

completion of the closure plan, the Plant Manager, with support from Corporate Environmental Protection, shall engage an independent professional engineer (P.E.) licensed to practice engineering by the State of Michigan. The P.E. will be required to review the plant's RCRA files and inspect the facility to verify removal of all hazardous wastes in accordance with this closure plan. When satisfied that closure has been completed, the P.E. shall submit a sealed letter to the Michigan DNR certifying that closure has been accomplished. A separate letter of certification must also be submitted to the Michigan DNR signed by an officer of BASF.

c. Date of Closure [265.112(a)(4)].

BASF anticipates closure of this facility in 1988.

III. GENERAL INFORMATION

a. Facility Description

The Troy Facility is in the City of Troy, Michigan which is located approximately 14 miles north of Detroit, The plant boundaries encompass about 1.7 acres.

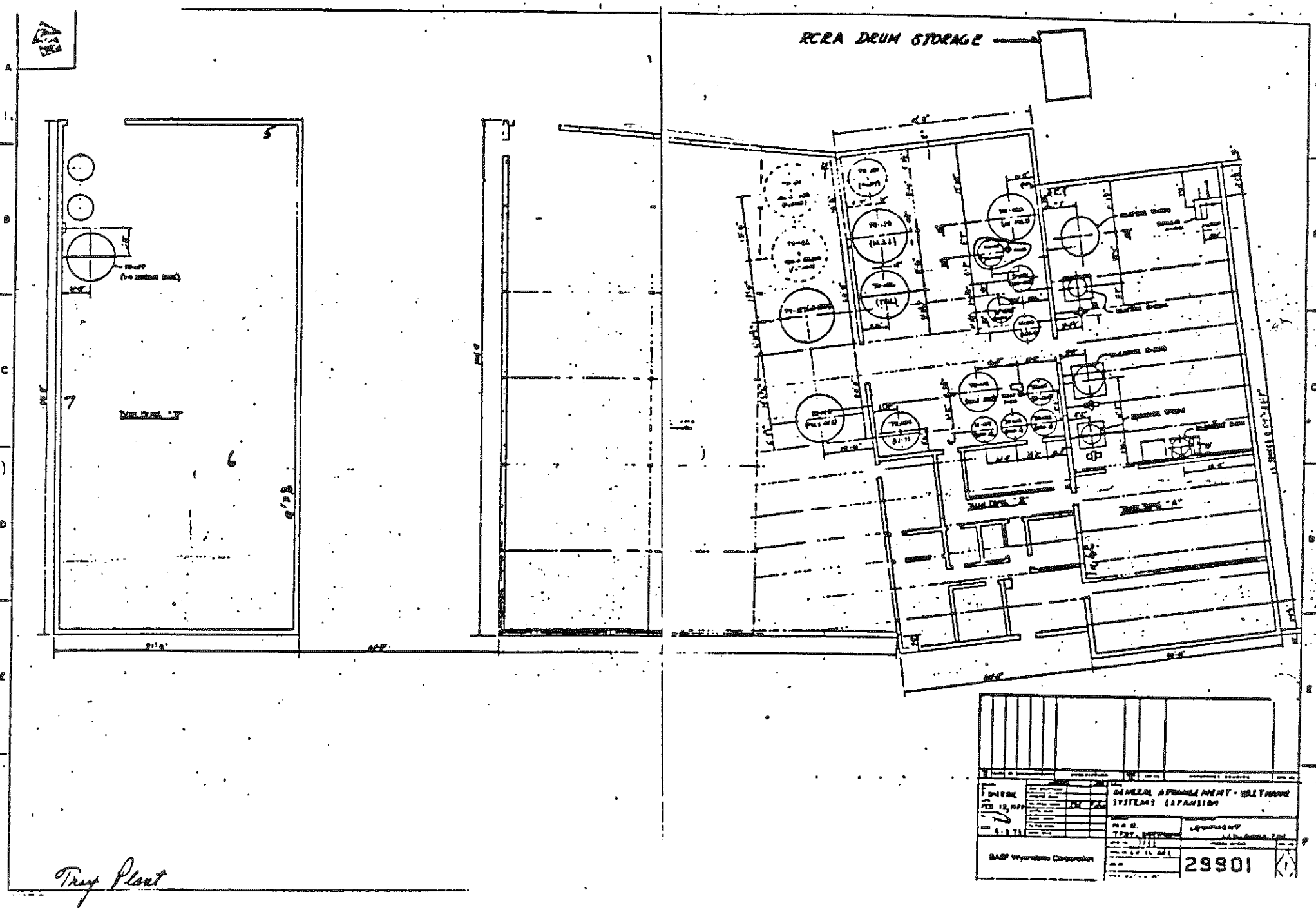
Approximately 26 full-time salaried employees formulated, blended, packaged and shipped cellular and non-cellular urethane systems. Major industrial customers include automotive, construction, appliance and shoe sole manufacturers.

Operations ceased at this location in 1986.

b. Waste Characterization

Generation and storage of regulated hazardous waste at this facility ceased in 1986. There is no anticipation for resuming this activity. Closure will be accomplished in 1988.


BLOOMFIELD HILLS
BLOOMFIELD TWP
CRANBROOK
TROY
OAKLAND
MACOMB
STERLING HTS.
BIRMINGHAM
CLAWSON
Franklin
Beverly Hills
Bingham Frms.
MADISON HGTS.
ROYAL OAK
LATHRUP VILL.
BERKLEY
DETROIT ZOO
SOUTHFIELD
OAK PARK
HAZEL PK.
CENTERLIN
FERNDALE
DETROIT
STATE FAIRGROUNDS
HIGHLAND PARK
DEARBORN HGTS.
DEARBORN
GREENFIELD VILLAGE
INKSTER
MELVINDALE
RIVER ROUGE
ALLEN PARK
ECORSE
Windsor, Ontario
Canada


RCRA DRUM STORAGE
Tray Plant
29901

IV. MAXIMUM EXTENT OF OPERATION [265.112(a)(1)]

The hazardous waste drum storage area consists of a continuously poured rectangular cement slab, 15 t. x 30 ft. in size. Surrounding the perimeter is a 7" curb capable of containing any potential spill. Accumulated rain water can be drained from within the enclosure through a 2" manual drain valve which is kept in a closed and padlocked position when not in use.

V. ESTIMATE OF MAXIMUM WASTE IN STORAGE [265.112(a)(2)]

This facility has not actively stored hazardous waste on site since 1986.

While the hazardous waste drum storage area was in use a maximum of 100 drums of material was stored. The materials stored in this area were:

U223 - Toluene Diisocyanate
F002 - Spent Methylene Chloride

VI. CLOSURE PLAN [265.112(a)(3)]

To verify the complete clean closure of the outdoor hazardous waste drum storage pad the following procedures will be implemented.

a. Soil Sampling.

Prior to the soil boring, an upper layer of concrete or asphalt will be removed. Soil borings will be made at four locations, (see attached soil boring/grid system drawing) using a hand or power auger to a maximum depth of 24 inches below the bottom of the concrete or asphalt layer. Five (5) soil samples will be collected at each boring: discrete samples will be collected at the surface and 6, 12, 18 and 24 inches below the surface.

Soil will be collected in the appropriate containers, preserved, and stored in accordance with the Environmental Protection Agency (EPA) Publication SW-846, Testing Methods for Evaluating Solid Waste.

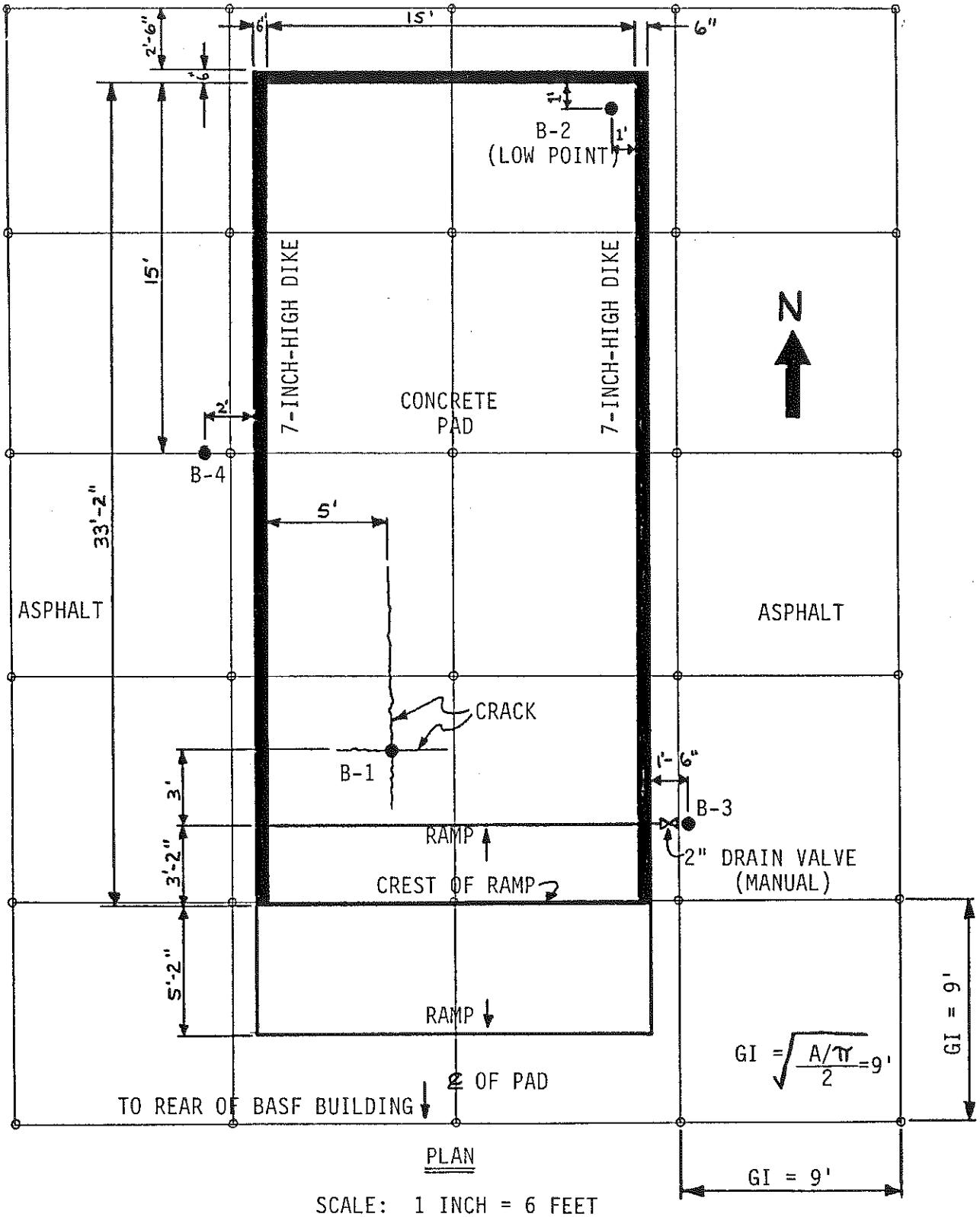
b. Sample Analysis.

The samples will be analyzed for toluene diisocyanate (TDI) and methylene chloride. High-pressure liquid chromatograhy will be used to analyze for TDI. Either EPA Method 601 or 624 will be used to analyze for methylene chloride.

c. If the initial soil samples indicate no evidence of hazardous materials being present, then the pad will be left intact.

d. If the initial soil samples indicate a contamination with TDI or methylene chloride, the extent of the contamination will be determined by collecting additional soil samples as shown in the attached drawing (grid interval of 8.5 feet was calculated using guidelines outlined in the Michigan Department of Natural Resources publication "How Clean Is Clean?").

e. Depending upon the results of the additional soil samples the pad will be removed, soil excavated and all materials properly disposed of as outlined in Act 64/RCRA clean closure guidelines "How Clean Is Clean?.



PLAN

SCALE: 1 INCH = 6 FEET

LEGEND

- ● INITIAL SOIL SAMPLE LOCATION SOIL BORING B-1,2,3,4
- ○ SOIL SAMPLE LOCATION IF CONTAMINATION FOUND
- GI GRID INTERVAL

SOIL BORING/GRID SYSTEM
FOR
RCRA DRUM STORAGE AREA

BASF CORPORATION
TROY MANUFACTURING FACILITY
TROY, MICHIGAN 4-29-88

VII. CLOSURE SCHEDULE [265.112(a)(3,4)]

Step	Time Required	Equipment and/or Special Provisions
Check inventory of filled or partially filled drums	Instantaneous	(Count drums and check against log inventory)
Contact approved and licensed hauler and disposal facility to schedule shipment	30 days	Contracts in place. Specific time required dependent on disposal facility schedule. Incineration is preferred method of disposal.
Visually inspect storage area	Instantaneous	Any waste residue remaining would be obvious to visual inspection
Rinse with isocyanate neutralization solution	4 hours	Neutralization solution consists of water containing 5% ammonia and 5% detergent. Isocyanate reaction with neutralizing solution is immediate and complete. Spent solution and reaction product (urea) are considered non-hazardous and non-toxic.
Inspect storage pad to assure decontamination	1 hour	BASF Environmental Protection personnel
Sample soil underlying storage pad to confirm clean closure	45 days	All work to be performed according to MDNR "How Clean Is Clean"
Schedule site inspection and certification by Michigan licensed professional engineer.	5 days	

No post-closure program is necessary.

VIII. COST ESTIMATE FOR CLOSURE [265.142]

Description of Expenditure	Cost
Labor - 8 man hours @ $20/hr. to decontaminate storage pad with neutralization solution	$ 160
Cleaning equipment - soap, water, hoses, brushes, etc.	100
Shipping and disposal of F002 wastes	9,500
Shipping and disposal of U223 wastes	35,000
Sample soil underlying storage pad	6,000
Inspection and certification by licensed professional engineer	240
	$51,000

IX. POST-CLOSURE PLAN [265.118] AND
POST-CLOSURE COST ESTIMATE [265.144]

Due to the nature of tplan,
neither post-closure plans nor post-closure cost estimates are required. All wastes will be removed from site.

EPA

Clayton Environmental Consultants, Inc.

22345 Roethel Drive • Novi, Michigan 48050 • (313) 344-1770

January 30, 1989

Mr. Alan J. Howard
Chief, Waste Management Division
Department of Natural Resources
P. O. Box 30028
Lansing, Michigan 48909

Clayton Project No. 51844-19

Subject: Certification of closure of hazardous waste container storage unit at BASF Corporation Chemicals Division in Troy, Michigan (EPA ID No. MID 057 007 478)

Dear Mr. Howard:

I certify that the hazardous waste container storage unit at BASF Corporation Chemicals Division's facility at 1200 Blaney in Troy, Michigan, has been properly closed. The hazardous waste container storage unit is a 33-foot by 15-foot concrete drum storage pad. Closure was completed following BASF's "Closure Plan/Hazardous Waste Management Storage Facilities," (dated June 1988) and as amended by the Michigan Department of Natural Resources (MDNR's) letter to BASF, dated August 12, 1988, entitled "Stipulations for Closure Plan Approval."

I am a Registered Professional Engineer, Certificate No. 33730, in the State of Michigan.

Sincerely,

Derek R. Wong, Ph.D., P.E.
Technical Supervisor and Senior Hydrogeologist
Environmental Engineering Services
Midwestern Operations

cc: Mr. Kenneth C. Koneval, BASF
Mr. William P. Robert, BASF
Ms. Ronda L. Hall, MDNR
Dr. Rebecca M. Spearot, P.E., Clayton

Clayton Environmental Consultants, Inc.

22345 Roethel Drive • Novi, Michigan 48050 • (313) 344-1770

January 30, 1989

Ms. Ronda L. Hall
Environmental Engineer
Hazardous Waste Permits Section
Waste Management Division
Department of Natural Resources
P. O. Box 30028
Lansing, Michigan 48909

Clayton Project No. 51844-19

Subject: Closure of hazardous waste container storage unit at BASF Corporation Chemicals Division in Troy, Michigan (EPA ID No. MID 057 007 478)

Dear Ms. Hall:

This letter addresses the statements in your January 19, 1989, letter to Mr. William Robert, Ecology Coordinator with BASF Corporation Chemicals Division in Livonia, Michigan, regarding the closure of a hazardous waste container storage unit at BASF Corporation's facility in Troy, Michigan. The hazardous waste container storage unit is a 33-foot by 15-foot concrete drum storage pad. Clayton Environmental Consultants, Inc. conducted the closure of the drum storage pad. You requested that BASF Corporation submit the following to the Michigan Department of Natural Resources (DNR):

- A sealed closure certification statement from a registered professional engineer
- A closure certification statement from BASF Corporation
- The analytical method used in Clayton's toluene diamine (TDA) analysis
- An explanation of the difference between methylene chloride limits of detection (LODs) of the analytical methods described in the 2nd and 3rd editions of the Environmental Protection Agency's Publication SW-846
- An explanation of the difference between the LODs for the quality control blank and the soil samples

CERTIFICATION LETTERS

Enclosed is a sealed closure certification statement from an independent registered professional engineer. BASF Corporation will submit its closure certification statement to MDNR.

TDA ANALYSIS

Clayton analyzed for TDA using gas chromatography/mass spectrometry (GC/MS) in accordance with BASF Corporation's methodology. BASF provided Clayton a description of the analytical method. The method is described in Section VI.b of BASF Corporation's Closure Plan.

METHYLENE CHLORIDE LOD FOR SOIL SAMPLES

Differences in LODs of the 2nd and 3rd editions of EPA's SW 846, Method 8240, are inherent in the methodologies.

Method 8240 in the 2nd edition of EPA's SW-846 is based on a methanol or polyethylene glycol (PEG) extraction of the sediment/soil sample and analysis of a portion of the extract by purge-and-trap GC/MS procedures. This method has provisions for purging different aliquots of the extract based on the estimated total volatile content (TVC). Typical LODs of this methodology, as noted in SW-846, 2nd edition, are approximately 100 to 1,000 micrograms per gram (µg/g) (wet weight) depending on dilution volumes.

Method 8240 in the 3rd edition of EPA's SW 846 is based on directly purging a heated sediment/soil sample, after mixing with reagent water, and analysis by purge-and-trap GC/MS procedures. The typical LOD of the 3rd edition methodology, as noted in SW-846, is 5 µg/kg (wet weight).

The purge-and-trap GC/MS instrument/analytical detection limits are the same for both methods. The main difference is in the extraction procedure of the 2nd edition method which entails a large dilution [100 to 1,000 (or larger) based on the amount of extract purged]. The elimination of the extraction step in the 3rd edition method accounts for the method's lower LOD.

QUALITY CONTROL BLANK AND SAMPLE LODS

Typical LODs listed for both 2nd and 3rd edition methods are based on a wet weight. Normally, data is reported on a dry weight basis. Clayton reported methylene chloride concentrations in the closure report on a dry weight basis. A quality control blank does not contain moisture; however, soil samples may contain different amounts of moisture. Therefore, LODs will be higher based on the percentage of moisture in each sample.

We hope that we have answered your questions.

Sincerely,

Derek R. Wong, Ph.D., P.E.
Technical Supervisor and Senior Hydrogeologist
Environmental Engineering Services
Midwestern Operations

Allen Schinsky
Senior Environmental Chemist
Novi Laboratory

cc: Mr. Alan J. Howard, DNR
Mr. Kenneth C. Koneval, BASF
Mr. James B. Laprad, BASF
Mr. William P. Robert, BASF
Dr. Rebecca M. Spearot, P.E., Clayton

Disk DW-HR3

EPA

Clayton Environmental Consultants, Inc.

22345 Roethel Drive • Novi, Michigan 48050 • (313) 344-1770

December 22, 1988

Mr. Alan J. Howard
Chief, Waste Management Division
Department of Natural Resources
P. O. Box 30028
Lansing, Michigan 48909

Subject: Certification of drum storage pad closure at BASF facility in Troy, Michigan (EPA ID No. MID 057007478)

Dear Mr. Howard:

Clayton Environmental Consultants, Inc. certifies that the drum storage pad at the rear of the BASF facility at 1200 Blaney in Troy, Michigan, has been properly closed. Closure was completed following BASF's "Closure Plan/Hazardous Waste Management Storage Facilities," (dated June 1988) and as ammended by the Michigan Department of Natural Resources (MDNR's) letter to BASF, dated August 12, 1988, entitled "Stipulations for Closure Plan Approval."

Sincerely,

Derek R. Wong, Ph.D., P.E.
Technical Supervisor and Senior Hydrogeologist
Environmental Engineering Services
Midwestern Operations

cc: Mr. Kenneth C. Koneval, BASF
Mr. William P. Robert, BASF
Ms. Ronda L. Hall, MDNR
Dr. Rebecca M. Spearot, P.E., Clayton

Clayton Environmental Consultants, Inc.

22345 Roethel Drive • Novi, Michigan 48050 • (313) 344-1770

December 20, 1988

Mr. William P. Robert
Ecology Coordinator
BASF CORPORATION
Chemicals Division
13000 Levan
Livonia, Michigan 48150

Clayton Project No. 51844-19

Subject: Closure of storage pad at the BASF Corporation facility in Troy, Michigan (EPA ID No. MID 057007478)

Dear Mr. Robert:

BASF Corporation retained Clayton Environmental Consultants, Inc. on September 16, 1988 to conduct soil sampling and decontaminate a hazardous waste container storage unit at the former BASF facility in Troy, Michigan. The hazardous waste container storage unit is a diked concrete storage pad. Clayton's work is part of BASF's closure of the storage pad.

The Michigan Department of Natural Resources (MDNR) approved BASF's closure plan (refer to Attachment A). The purpose of this investigation was to determine if the native soils beneath and near the diked concrete pad were contaminated by toluene diisocyanate (TDI) and methylene chloride.

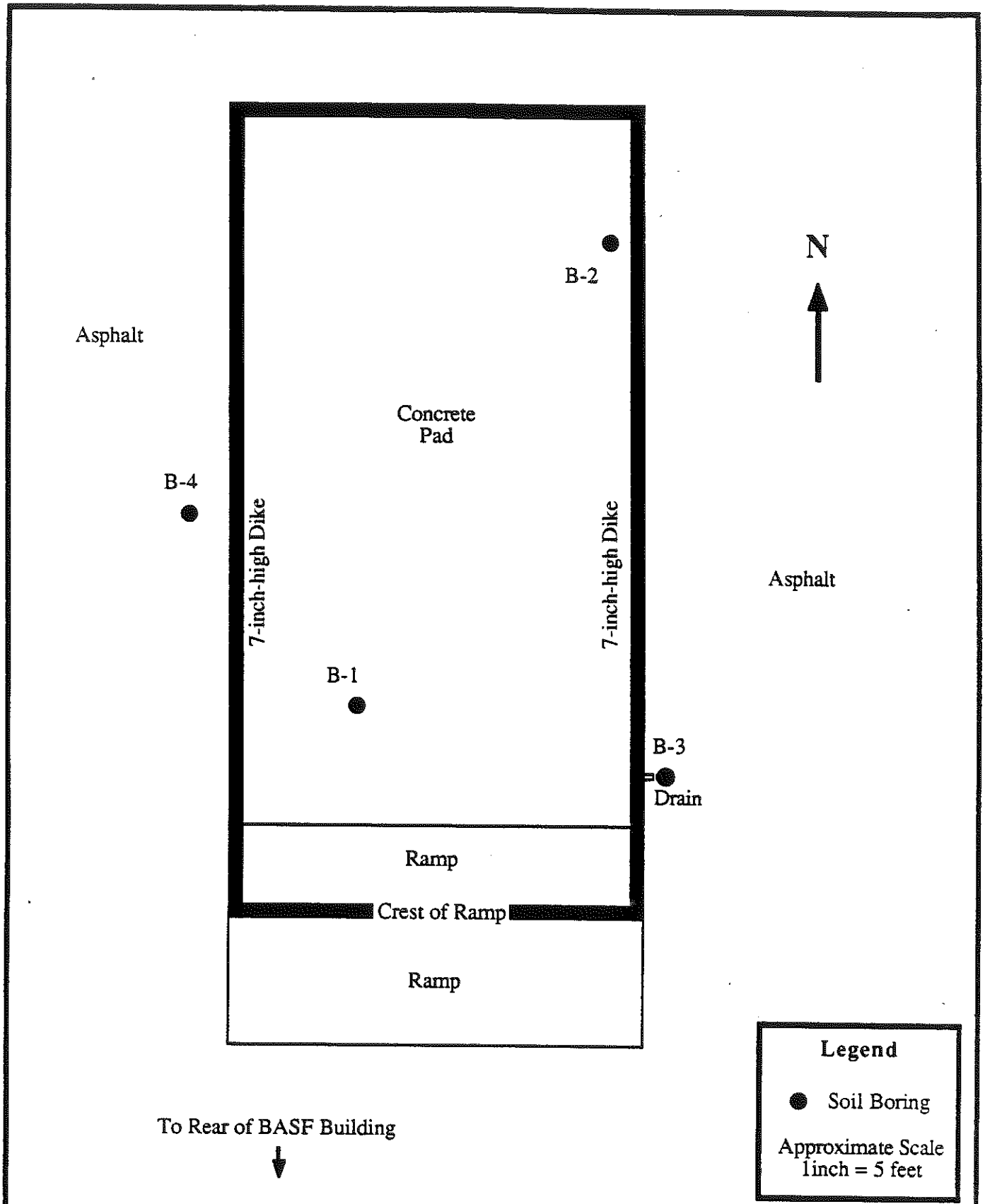
BACKGROUND

The 1.7-acre BASF facility formulated, blended, packaged, and shipped cellular and non-cellular urethane systems. The storage pad was constructed in 1981 to store drums filled with methylene chloride and TDI. All operations ceased at the Troy facility in 1986. No drums were stored on the pad at the time of closure.

The concrete pad is approximately 15 feet wide, 33 feet long, and 6 inches thick. The pad is surrounded by a 7-inch high concrete dike (curb). The pad is located in an asphalt-paved area north of the BASF building. When the facility was operating, a 2-inch pipe and valve was used to drain accumulated water from the diked area. The pipe discharged onto the asphalt pavement.

SOIL SAMPLING

Clayton drilled soil borings with a truck-mounted drill rig at the four locations shown in the figure on the next page. Clayton drilled 6-inch diameter holes at each of the four locations with a hollow-stem auger to remove the concrete, asphalt, and gravel-fill



Soil boring locations at the BASF facility in Troy, Michigan (Clayton Project No. 51844-19).

layers before collecting the soil cores. Clayton used a split-spoon sampler to collect 2-inch diameter and 2-foot-long soil cores of what appeared to be native soil. The maximum depth of each soil core was 2 feet below the bottom of the concrete, asphalt, and gravel-fill layer. After soil sampling, each borehole was sealed with concrete.

Discrete soil samples were collected at 0 to 6 inches, 6 to 12 inches, 12 to 18 inches, and 18 to 24 inches below the concrete, asphalt, and gravel-fill layer. The soil samples from each borehole were generally described as light olive gray (5Y 6/1) to moderate yellowish brown (10YR 5/4), very-fine-grained-sand and silt-bearing clay. Complete soil sample descriptions for each borehole can be found in the boring logs in Attachment B.

The samples from each boring were shared with BASF. As requested by BASF, Clayton kept one sample from each sampling location for laboratory analysis and submitted the other to BASF.

Soil sampling was based on the American Society of Testing and Materials (ASTM) Standard Method for Penetration Test and Split-Barrel Sampling of Soils, Designation D 1586-84.

All equipment was properly cleaned before each split-spoon sample was collected. The split-spoon sampler, auger, and all other sampling equipment were washed with a solution of 5 percent ammonia, 5 percent detergent, and 90 percent water and rinsed with deionized water. All wash and rinse water was recovered and placed into a 55-gallon drum. Clayton collected samples of the wash and rinse water for methylene chloride and TDA analysis.

Soil samples were collected in appropriate containers, preserved, and stored in accordance with Environmental Protection Agency (EPA) Publication SW-846, "Testing Methods for Evaluating Solid Waste." The samples were transported to the Clayton laboratory in Novi, Michigan. Clayton maintained chain-of-custody records for all samples. Attachment C presents the chain-of custody records.

LABORATORY ANALYSIS

As stated by MDNR's letter to BASF, dated August 12, 1988, entitled "STIPULATIONS FOR CLOSURE PLAN APPROVAL," the surface sample from each boring was analyzed for toluene diamine (TDA) (which is a derivative of TDI) and methylene chloride (refer to Attachment D). The MDNR required the following limits of detection (LOD):

Analyte	Soil LOD	Water LOD
Methylene Chloride	100 µg/kg	5 µg/L
TDA	10 mg/kg	10 mg/L

µg/kg = micrograms per kilogram
µg/L = micrograms per liter
mg/kg = milligrams per kilogram
mg/L = milligrams per liter

As stated by the MDNR, if methylene chloride or TDA are detected in any of the borings, subsequent samples will be analyzed until the extent of contamination in each boring is defined.

ANALYTICAL RESULTS FOR SOILS

Table 1 presents the analytical results for TDA in soils. Table 2 presents the analytical results for methylene chloride in soils.

TABLE 1
Analytical Results for TDA in Soils

SAMPLE	DEPTH (inch)	MOISTURE CONTENT (percent)	TDA (mg/kg)	LOD (mg/kg)
B1-0 to 6	0 to 6	11.8	<10	10
B2-0 to 6	0 to 6	20.7	<10	10
B3-0 to 6	0 to 6	16.3	<10	10
B4-0 to 6	0 to 6	18.3	<10	10
Q.C. Blank[a]			<10	<10

[a] Q.C. = quality control blank

TABLE 2
Analytical Results for Methylene Chloride in Soils

SAMPLE	DEPTH (inch)	MOISTURE CONTENT (percent)	2nd Edition METHYLENE CHLORIDE[a] (µg/kg)	2nd Edition LOD (µg/kg)	3rd Edition METHYLENE CHLORIDE[b] (µg/kg)	3rd Edition LOD (µg/kg)
B1-0 to 6	0 to 6	11.8	<600	600	<6	6
B2-0 to 6	0 to 6	20.7	<600	600	6	6
B3-0 to 6	0 to 6	16.3	<600	600	<6	6
B4-0 to 6	0 to 6	18.3	<600	600	<6	6
Q.C. Blank			<500	<500	<5	<5
B1-6 to 12	6 to 12	12.9	<600	600	<6	6
B2-6 to 12	6 to 12	15.4	<600	600	<6	6
B3-6 to 12	6 to 12	13.0	<600	600	<6	6
B4-6 to 12	6 to 12	19.2	<600	600	<7	6
Q.C. Blank[c]			<500	<500	<5	<5

[a] SW-846 Method 5030/8240 (2nd edition)
[b] SW-846 Method 5030/8240 (3rd edition)
[c] Q.C. = quality control blank

DRUM STORAGE PAD CLEANING

Great Lakes Environmental Services in Warren, Michigan, cleaned the drum storage pad.

The drum storage pad was rinsed three times with a solution consisting of 5 percent ammonia, 5 percent detergent and 90 percent water. All water used to rinse the drum storage pad was recovered with a vacuum, placed in separate drums for each rinse, and analyzed for methylene chloride and TDA.

ANALYTICAL RESULTS OF RINSATE AND EQUIPMENT WASHWATER

Table 3 presents the analytical results of TDA and methylene chloride in rinsate solutions collected after rinsing the drum pad three times (Rinsates 1, 2, and 3) and the washwater collected after cleaning the drilling and sampling equipment (Equipment Washwater).

TABLE 3
Analytical Results for Methylene Chloride and TDA in Rinsates 1, 2, and 3 and Drilling Washwater

SAMPLE	METHYLENE CHLORIDE (µg/L)	LOD (µg/L)	TDA (µg/L)	LOD (µg/L)
Rinsate 1	<200	200	<10	10
Rinsate 2	NA[a]	–	<10	10
Rinsate 3	NA	–	<10	10
Equipment Washwater	<2,000	2,000	<10	10
Q.C. Blank[b]	<5	<5	<10	<10

[a] Not analyzed
[b] Q.C. = quality control blank

The MDNR established the LOD for methylene chloride at 5 micrograms per liter (µg/L) and for TDA, 10 milligrams per liter (mg/L) in water. Clayton was not able to obtain the methylene chloride LOD because of interference from the soap ingredients in the rinsate solution. However, Clayton's quality control (Q.C.) blank sample did not contain methylene chloride. The detection limit for the Q.C. Blank was 5 µg/L.

Samples were initially analyzed at full strength (5 milliliters purged) as described in EPA publication SW-846, Method 8240. During analysis, the samples began to foam which caused the sample transfer lines and the gas chromatography/mass spectrometry

known dilution before they could be analyzed. The LOD was higher than 5 µg/L because the samples were diluted.

DISPOSAL OF RINSATE

According to the MDNR, if the rinsate did not contain detectable quantities of methylene chloride or TDA, BASF may discharge the rinsate to the sewer with the Detroit Wastewater Sewerage Department's (DWSD) approval. According to the MDNR, if the rinsate contained detectable quantities of methylene chloride or TDA, the rinsate must be handled and disposed of as a hazardous waste at a properly licensed facility.

BASF received approval from the DWSD to discharge the rinsate into the sewer (see Attachment E). The rinsate was discharged into the sewer since methylene chloride and TDA were not detected in the rinsate.

DISCUSSION

Clayton followed MDNR's requirements for closure of BASF's drum storage pad. Clayton followed MDNR's recommendations for soil sampling, equipment and drum pad decontamination, and analytical procedures.

Clayton did not detect methylene chloride or TDA in the 0- to 6-inch deep soil samples collected at four locations. As an additional confirmation, Clayton analyzed the 6- to 12-inch deep soil samples and did not detect any methylene chloride.

The three drum pad rinsates and the equipment washwater did not contain TDA. Methylene chloride was not detected in the first rinsate, but the LOD was higher than 5 µg/L due to interference from soap in the sample. However, in our opinion, the rinsates and equipment washwater do not contain methylene chloride because methylene chloride was not detected in any of the soil samples, and the quality control blank sample did not contain methylene chloride at a detection limit of 5 µg/L.

DISCLAIMER

The information and opinions rendered in this report are exclusively for use by the BASF Corporation, and Clayton Environmental Consultants, Inc. requests that they not be distributed or published without consent. The information and opinions are given in response to a limited assignment and should be implemented only in light of that assignment. Clayton accepts responsibility for the competent performance of its duties in executing the assignment and preparing reports in accordance with the normal standards of the profession, but disclaims any responsibility for consequential damages.

Sincerely,

Derek R. Wong, Ph.D., P.E.
Technical Supervisor and Senior Hydrogeologist
Environmental Engineering Services
Midwestern Operations

Daniel T. Rogers
Geologist
Environmental Engineering Services
Midwestern Operations

Attachments

Disk: DTR-6 and DW-HR3
File: BASF Pad Closure/Troy

ATTACHMENT A

CLOSURE PLAN

HAZARDOUS WASTE MANAGEMENT

STORAGE FACILITIES

BASF CORPORATION

TROY MICHIGAN FACILITY

EPA ID NO. MID 057007478

Published: 11/80
Revised: 3/83
Revised: 4/85
Revised: 4/88
Revised: 6/88

TABLE OF CONTENTS

I. SITE IDENTIFICATION

BASF Corporation
Troy Michigan Facility
1200 Blaney Drive
Troy, Michigan 48084

(313) 591-5553

EPA ID No. MID 057007478

Generator and Storage Facility

Plant Manager: Rudy Merriweather

Ecology Coordinator: W. Robert

II. INTRODUCTION [40 CFR 265.112(a)(b)(d)]

a. Document Description.

This is the closure plan of the Hazardous Waste Management Facility (hereinafter Facility) at BASF Corporation's (BASF's) Troy, Michigan site. The storage facility was constructed in 1981 to hold and contain drums of methylene chloride and isocyanate wastes in accordance with RCRA/Act 64 requirements and BASF corporate standards. Due to a business expansion and relocation, production at BASF's Troy facility ceased in 1986.

In light of the fact that the Troy site will be cleaned, closed and sold this negated the need for further maintenance and thus prevents or minimizes post closure escape of hazardous waste or constituents.

b. Certification and Notification of Closure [265.112(a)(d).

One hundred eighty days prior to closure, written notification of closure shall be submitted along with this closure plan to:

Michigan Department of Natural Resources
Waste Management Division
Hazardous Waste Permit Section
Ottawa Street Building
P.O. Box 30028
Lansing, MI 48904

completion of the closure plan, the Plant Manager, with support from Corporate Environmental Protection, shall engage an independent professional engineer (P.E.) licensed to practice engineering by the State of Michigan. The P.E. will be required to review the plant's RCRA files and inspect the facility to verify removal of all hazardous wastes in accordance with this closure plan. When satisfied that closure has been completed, the P.E. shall submit a sealed letter to the Michigan DNR certifying that closure has been accomplished. A separate letter of certification must also be submitted to the Michigan DNR signed by an officer of BASF.

Currently all hazardous waste which were stored at this site have been removed and disposed of in accordance with State, Federal and BASF corporate requirements for Hazardous Waste Management. Closure will be completed within 180 days of the closure starting date. The Michigan Department of Natural Resources (DNR) will be notified 45 days prior to the closure starting date and

will have a copy of all results and analytical methods used with detection limits (see VI6).

If decontamination of the waste storage pad is required, a neutralization solution (see VII) will be used and disposed of in the Troy POTW. The waste disposed of will be non hazardous and non toxic liquid.

c. Date of Closure [265.112(a)(4)].

BASF anticipates closure of this facility in 1988.

III. GENERAL INFORMATION

a. Facility Description

The Troy Facility is in the City of Troy, Michigan which is located approximately 14 miles north of Detroit, The plant boundaries encompass about 1.7 acres.

Approximately 26 full-time salaried employees formulated, blended, packaged and shipped cellular and non-cellular urethane systems. Major industrial customers include automotive, construction, appliance and shoe sole manufacturers.

Operations ceased at this location in 1986.

b. Waste Characterization

Generation and storage of regulated hazardous waste at this facility ceased in 1986. There is no anticipation for resuming this activity. Closure will be accomplished in 1988.

IV. MAXIMUM EXTENT OF OPERATION [265.112(a)(1)]

The hazardous waste drum storage area consists of a continuously poured rectangular cement slab, 15 t. x 30 ft. in size. Surrounding the perimeter is a 7" curb capable of containing any potential spill. Accumulated rain water can be drained from within the enclosure through a 2" manual drain valve which is kept in a closed and padlocked position when not in use. The hazardous waste drums storage area has not been utilized for storing wastes since 1986. It is BASF Corporation's intent not to use this storage area for hazardous waste storage in the future.

V. ESTIMATE OF MAXIMUM WASTE IN STORAGE [265.112(a)(2)]

This facility has not actively stored hazardous waste on site since 1986.

While the hazardous waste drum storage area was in use a maximum of 100 drums of material was stored. The materials stored in this area were:

U223 - Toluene Diisocyanate
F002 - Spent Methylene Chloride

VI. CLOSURE PLAN [265.112(a)(3)]

To verify the complete clean closure of the outdoor hazardous waste drum storage pad the following procedures will be implemented.

a. Soil Sampling.

Prior to the soil boring, an upper layer of concrete or asphalt will be removed through use of a cement core drill. Thus cement and asphalt can be removed to sample soil below. Soil borings will be made at four locations, (see attached soil boring/grid system drawing) using a hand or power auger to a maximum depth of 24 inches below the bottom of the concrete or asphalt layer. Five (5) soil samples will be collected at each boring: discrete samples will be collected at the surface and 6, 12, 18 and 24 inches below the surface.

Soil will be collected in the appropriate containers, preserved, and stored in accordance with the Environmental Protection Agency (EPA) Publication SW-846 protocol, Testing Methods for Evaluating Solid Waste.

b. Sample Analysis.

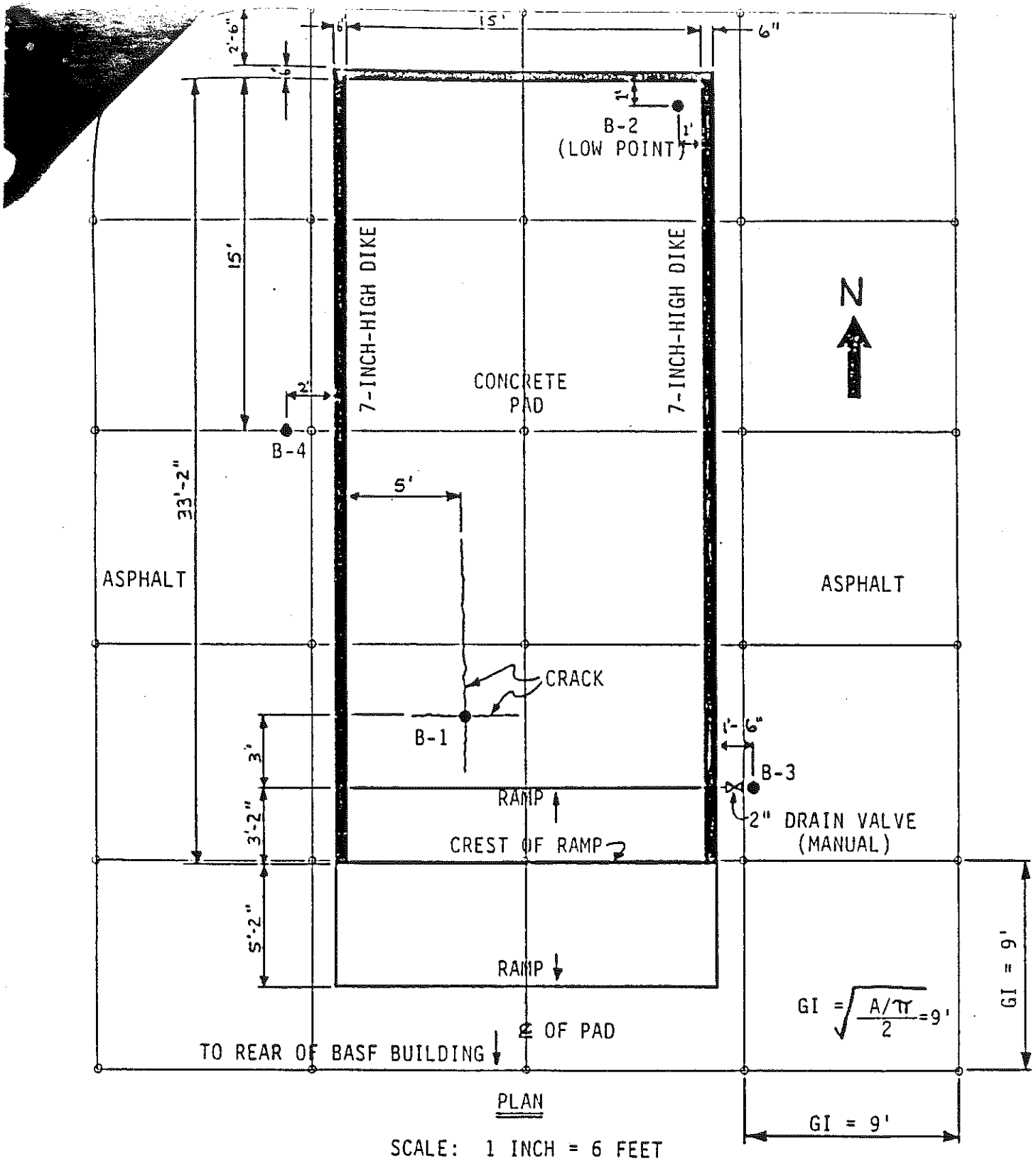
The samples will be analyzed for toluene diisocyanate (TDI) and methylene chloride. Toluene diisocyanate (TDI) is analyzed by analyzing for a degradation product toluene diamine (TDA). The soil sample will be analyzed using SW-846 Method 3540 - Soxhlet extraction using methylene chloride as the solvent. The extracts will be concentrated and analyzed by GC/MS using a DB-5 column. The lower limit of detection is 10 mg./Kg.

To analyze for methylene chloride, 10 grams of sample will be placed in a purge and trap tube and 10 ml. of distilled water was added. EPA Method 624 - Volatile organic analysis by GC/MS will be used for analysis. The lower limit of detection is 1 mg./Kg.

If the initial [illegible] indicate no evidence of hazardous materials present, then the pad will be left intact.

If the initial soil samples indicate a contamination with TDI or methylene chloride, the extent of the contamination will be determined by collecting additional soil samples as shown in the attached drawing (grid interval of 8.5 feet was calculated using guidelines outlined in the Michigan Department of Natural Resources publication "How Clean Is Clean?").

c. Excavation



PLAN

SCALE: 1 INCH = 6 FEET

LEGEND

- ● INITIAL SOIL SAMPLE LOCATION SOIL BORING B-1,2,3,4
- ○ SOIL SAMPLE LOCATION IF CONTAMINATION FOUND
- GI GRID INTERVAL

SOIL BORING/GRID SYSTEM
FOR
RCRA DRUM STORAGE AREA

BASF CORPORATION
TROY MANUFACTURING FACILITY
TROY, MICHIGAN

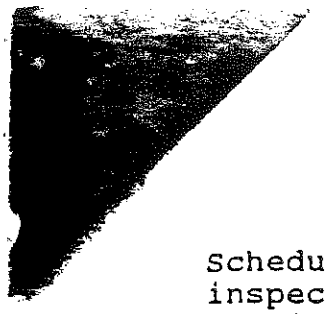
4-29-88

Depending upon the results of the additional soil samples the pad will be removed, soil excavated and all materials properly disposed of as outlined in Act 64/RCRA clean closure guidelines "How Clean Is Clean?.

If deemed necessary through analytical results of the soil testing, the asphalt and concrete will be removed, decontaminated as noted in V11 neutralization, and disposed of in a licensed sanitary landfill. Soil deemed contaminated will be disposed of in a licensed hazardous waste landfill.

VII. CLOSURE SCHEDULE [265.112(a)(3,4)]

Step	Time Required	Equipment and/or Special Provisions
Check inventory of filled or partially filled drums	Instantaneous	(Count drums and check against log inventory)
Contact approved and licensed hauler and disposal facility to schedule shipment	30 days	Contracts in place. Specific time required dependent on disposal facility schedule. Incineration is preferred method of disposal.
Visually inspect storage area	Instantaneous	Any waste residue remaining would be obvious to visual inspection
Rinse with isocyanate neutralization solution	4 hours	Neutralization solution consists of water containing 5% ammonia and 5% detergent. Isocyanate reaction with neutralizing solution is immediate and complete. Spent solution and reaction product (urea) are considered non-hazardous and non-toxic and can be discharged to the Troy POTW
Inspect storage pad to assure decontamination	1 hour	BASF Environmental Protection personnel
Sample soil underlying storage pad to confirm clean closure	45 days	All work to be performed according to MDNR "How Clean Is Clean". If necessary, concrete and asphalt will be decontaminated with neutralization solution and disposed of in a licensed sanitary landfill. Contaminated soil will be removed to a depth specified by analytical results in a



licensed hazardous waste land fill.

Schedule site inspection and certification by Michigan licensed professional engineer.	5 days

No post-closure program is necessary.

VIII. COST ESTIMATE FOR CLOSURE [265.142]

Description of Expenditure	Cost
Labor - 8 man hours @ $20/hr. to decontaminate storage pad with neutralization solution*	$ 160
Cleaning equipment - soap, water, hoses, brushes, etc.	100
Shipping and disposal of F002 wastes	9,500
Shipping and disposal of U223 wastes	35,000
Sample soil underlying storage pad	6,000
Inspection and certification by licensed professional engineer	240
Sub Total	$51,000
If necessary to remove concrete/asphalt pad shipping and disposal of decontaminated pad	10,000
Excavation of soil	3,000
Shipping and disposal of contaminated soil	6,000
Max Total	$70,000

IX. POST-CLOSURE PLAN [265.118] AND POST-CLOSURE COST ESTIMATE [265.144]

Due to the nature of this facility and its closure plan, neither post-closure plans nor post-closure cost estimates are required. All wastes will be removed from site.

* Storage pad will be triple rinsed with isocyanate neutralization solution. The spent isocyanate neutralization will be non hazardous, non toxic and will be discharged to Troy POTW.

ATTACHMENT B

BORING LOG

Log of test boring No. B-1

Sheet 1 of 1

Project BASF Storage Pad Closure

Clayton Project No. 51844-19

Location 1200 Blaney
Troy, Michigan

Drilling contractor McDowell and Associates

Geologist Daniel T. Rogers

Surface elevation Approximately 700 feet (MSL)

Date started 17-Oct-88

Date completed 17-Oct-88

Boring method Hollow-stem auger

Monitoring well Not installed

Elev. of top of well

Length of screen

Screen material

Depth to top of screen

Bentonite seal from

Hole plugged with Concrete slurry

Lock make & no.

Groundwater encountered during drilling at Not encountered

After completion at

After 24 hours

Sample Type	Color	Depth in Feet	Description
		Surface	Concrete
		0.5	
		0.66	Asphalt
	Moderate yellowish brown (10 YR 5/4)	2	Sandy gravel; (GP); dry
SS	Light olive gray (5 Y 6/1)	4	Very-fine-grained-sand and silt-bearing clay; (CL); dry; 22 blows; 24-inch recovery
			Boring terminated at 4 feet

LEGEND:
SS - 2-inch diameter split spoon sample
ST - Shelby tube sample
SNR - Sample not recovered
CS - Core barrel sample
Grab- Sample collected from auger cuttings

BORING LOG

Log of test boring No. B-2

Sheet 1 of 1

Project BASF Storage Pad Closure
Clayton Project No. 51844-19

Location 1200 Blaney
Troy, Michigan

Drilling contractor McDowell and Associates

Geologist Daniel T. Rogers

Surface elevation Approximately 700 feet (MSL)

Date started 17-Oct-88

Date completed 17-Oct-88

Boring method Hollow-stem auger

Monitoring well Not installed

Elev. of top of well

Length of screen

Screen material

Depth to top of screen

Bentonite seal from

Hole plugged with Concrete slurry
Lock make & no.

Groundwater encountered during drilling at Not encountered

After completion at

After 24 hours

LEGEND:
SS - 2-inch diameter split spoon sample
ST - Shelby tube sample
SNR - Sample not recovered
CS - Core barrel sample
Grab- Sample collected from auger cuttings

Sample Type	Color		Depth in Feet	Description
			Surface	Concrete
			0.5	
			0.66	Asphalt
	Moderate yellowish brown (10 YR 5/4)		2	Sandy gravel; (GP); dry
SS	Light olive gray (5 Y 6/1) to moderate yellowish brown (10 YR 5/4)		4	Very-fine-grained-sand and silt-bearing clay; (CL); dry; 34 blows; 24-inch recovery
				Boring terminated at 4 feet

BORING LOG

Log of test boring No. B-3

Sheet 1 of 1

Project BASF Storage Pad Closure

Clayton Project No. 51844-19

Location 1200 Blaney
Troy, Michigan

Drilling contractor McDowell and Associates

Geologist Daniel T. Rogers

Surface elevation Approximately 700 feet (MSL)

Date started 17-Oct-88

Date completed 17-Oct-88

Boring method Hollow-stem auger

Monitoring well Not installed

Elev. of top of well

Length of screen

Screen material

Depth to top of screen

Bentonite seal from

Hole plugged with Concrete slurry
Lock make & no.

Groundwater encountered during drilling at Not encountered

After completion at

After 24 hours

LEGEND:
SS - 2-inch diameter split spoon sample
ST - Shelby tube sample
SNR - Sample not recovered
CS - Core barrel sample
Grab- Sample collected from auger cuttings

Sample Type	Color	Depth in Feet	Description
		Surface	Asphalt
		0.25	
	Moderate yellowish brown (10 YR 5/4)		Sandy gravel; (GP); dry
		1.6	
	Olive gray (5 Y 4/1)		Trace of well-rounded pebbles, organic-rich clay; (OH); dry; 30 blows; 24-inch recovery
		3.6	
			Boring terminated at 3.6 feet

BORING LOG

Log of test boring No. B-4

Sheet 1 of 1

Project BASF Storage Pad Closure

Clayton Project No. 51844-19

Location 1200 Blaney
Troy, Michigan

Drilling contractor McDowell and Associates

Geologist Daniel T. Rogers

Surface elevation Approximately 700 feet (MSL)

Date started 17-Oct-88

Date completed 17-Oct-88

Boring method Hollow-stem auger

Monitoring well Not installed

Elev. of top of well

Length of screen

Screen material

Depth to top of screen

Bentonite seal from

Hole plugged with Concrete slurry

Lock make & no.

Groundwater encountered during drilling at Not encountered

After completion at

After 24 hours

LEGEND:
SS - 2-inch diameter split spoon sample
ST - Shelby tube sample
SNR - Sample not recovered
CS - Core barrel sample
Grab- Sample collected from auger cuttings

Sample Type	Color	Depth in Feet	Description
		Surface	Asphalt
		0.25	
	Moderate yellowish brown (10 YR 5/4)		Sandy gravel; (GP); dry
		1.6	
	Olive gray (5 Y 4/1)		Trace of well-rounded pebbles, organic-rich clay; (OH); dry; 23 blows; 24-inch recovery
		3.6	
			Boring terminated at 3.6 feet

ATTACHMENT C

CHAIN OF CUSTODY RECORD

CLAYTON JOB NO. 5191-1-19 | CLIENT NAME BASF

SAMPLERS: Daniel Rogers

SAMPLE NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NUMBER OF CONTAINERS	PARAMETERS (Metals, Fe)	SAMPLE DESCRIPTION	INSTRUCTIONS ATTACHED
Dredging	10-17	11:30		X	1200 Bldg. Troy MI	2	✓ ✓		
Rinsate	10-19	12:30		X	↓	2	✓ ✓		
Rinsate 2	10-19	12:30		X		2	✓ ✓		
Rinsate 3	10-19	12:30		X		2	✓ ✓		

Relinquished By: Dan Rogers | Date / Time: 10-19 3:15 | Received By: Nancy Mathis SEAL ☐BROKEN ☐INTACT ☐NA

Relinquished By: | Date / Time: | Received By: SEAL ☐BROKEN ☐INTACT ☐NA

Relinquished By: | Date / Time: | Received By: SEAL ☐BROKEN ☐INTACT ☐NA

Relinquished By: | Date / Time: | Received By: SEAL ☐BROKEN ☐INTACT ☐NA

Remarks: RECEIVED OCT 20 1998

LABORATORY REPORT ATTN OF:

Clayton Environmental Consultants, Inc.
22345 Roethel Drive • Novi, Michigan 48050 • (313) 344-1770

CHAIN OF CUSTODY RECORD

CLAYTON JOB NO. 5184-19

CLIENT NAME: BASF CORPORATION

SAMPLERS: Daniel Rogers

SAMPLE NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NUMBER OF CONTAINERS	PARAMETERS: Methylene Chloride	PARAMETERS: Toluene diamine	SAMPLE DESCRIPTION
B1-Old	10-17	11:30			1200 Blaney, Troy, MI	1	✓	✓	
B2-Old	10-17	11:30			↓	1	✓	✓	
B3-Old	10-17	11:30				1	✓	✓	
B1-Old	10-17	11:30				1	✓	✓	

Relinquished By: [signature] — Date / Time: 10-17-88 2:55 P.M. — Received By: Nancy Moffat — SEAL ☐BROKEN ☐INTACT ☐NA

Relinquished By: — Date / Time: — Received By: — SEAL ☐BROKEN ☐INTACT ☐NA

Relinquished By: — Date / Time: — Received By: — SEAL ☐BROKEN ☐INTACT

Relinquished By: — Date / Time: — Received By: — SEAL ☐BROKEN ☐INTACT

Remarks

5184-19

Clayton Environmental Consultants, Inc.

CHAIN OF CUSTODY RECORD

CLAYTON JOB NO. 51944-14

CLIENT NAME BASF

SAMPLERS: Daniel Rogers

SAMPLE NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NUMBER OF CONTAINERS	PARAMETERS: Methylene Chloride	PARAMETERS: Toluene	SAMPLE DESCRIPTION
B1-6to12	10-17	11:50	X		1200 Big Beaver, Troy, Michigan	1	✓	✓	
B1-12to18	10-17		X			1	✓	✓	
B1-18to24	10-17		X			1	✓	✓	
B2-6to12	10-17		X			1	✓	✓	
B2-12to18	10-17		X			1	✓	✓	
B2-18to24	10-17		X			1	✓	✓	
B3-6to12	10-17		X			1	✓	✓	
B3-12to18	10-17		X			1	✓	✓	
B3-18to24	10-17		X			1	✓	✓	
B4-6to12	10-17		X			1	✓	✓	
B4-12to18	10-17		X			1	✓	✓	
B4-18to24	10-17	↓	X			1	✓	✓	

Relinquished By:	Date / Time	Received By:	Relinquished By:	Date / Time	Received By:
Dan Rogers	10-17 3:15	Nancy Moffett SEAL ☐BROKEN ☐INTACT ☐NA			SEAL ☐BROKEN ☐INTACT ☐
		SEAL ☐BROKEN ☐INTACT ☐NA			SEAL ☐BROKEN ☐INTACT ☐

Remarks:

LABORATORY REPORT ATTN OF

Clayton Environmental Consultants, Inc.

22345 Roethel Drive • Novi, Michigan 48050 • (313) 344-1770

NOVI LAB REPORT ROUTING SLIP

CLIENT: BASF Corporation
PROJECT NO.: 51844-19
LAB REPORT NO.:
SPECIAL HANDLING?:

	DATE	INITIALS
Received	10/17	NM
Logged-in	10-17-88	CK
Sample Prep	10-25-88 - 10/26/88	TO/RA/MP
Sample Analysis	10-25-88 - 10/26/88	TO/RA/MP
Results Calculated	10-25-88 - 10/26/88	TO/RA/MP
Calculations Checked	10/27/88	
Supervisor Review	11/1	
Data Processing		
Lab Report Typed		
Draft Report Proofed		
Corrections Made		
Corrections Proofed		
Final Review #1		
Final Review #2		
Copied		

Report Delivered Via

- Fed-X
- First Class Mail
- Courier
- Client Pick-up
- Clayton Office
- Phone to:
- Telefax:

ATTACHMENT D

STATE OF MICHIGAN

JAMES J. BLANCHARD, Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T. MASON BUILDING
BOX 30028
LANSING, MI 48909

~~XXXXXXXXXXXXXXX~~
David F. Hales, Director

August 12, 1988

Mr. Bill Robert
Ecology Coordinator, Urethane Specialties
BASF Corporation Chemicals Division
13000 Levan Road
Livonia, Michigan 48150

Dear Mr. Robert:

Subject: Approval of Closure Plan for
Hazardous Waste Container Storage Unit
MID 067 007 478

The Waste Management Division has completed the review of BASF Corporation's Troy Facility Closure Plan submitted on June 28, 1988. This revised closure plan, as modified by the attached "Stipulations for Approval", meets the closure requirements for interim status facilities in 40 CFR Part 265 and is hereby approved.

The closure plan was public noticed on May 19, 1988 and no comments were received. The public was requested to provide information about releases from your facility to the air, surface water, groundwater, or soil. In addition, the April 27, 1988 submittal of the plan was made available for public inspection. The public comment period ended June 30, 1988.

Closure of RCRA interim status units does not release the facility from its responsibilities under the Hazardous and Solid Waste Amendments of 1984 (HSWA). All interim status facilities are subject to the corrective action requirements.

If you have any questions regarding this approval, please contact Ms. Ronda L. Hall at 517-373-2730.

Sincerely,

Alan J. Howard, Chief
Waste Management Division
517-373-2730

Attachment
cc: Ms. Marilyn Sabadaszka, U.S. EPA
Mr. Richard Traub, U.S. EPA
Mr. Kenneth Burda, DNR/C&E File
Mr. Ben Okwumabua, DNR
Ms. Ronda L. Hall, DNR
Mr. Steven Sliver, DNR

STIPULATIONS FOR CLOSURE PLAN APPROVAL

BASF Corporation Chemicals Division
Troy, Michigan Facility
1200 Blaney Drive
Troy, Michigan 48084

MID 057 007 478

1. Methylene chloride and toluene diamine (TDA) will be analyzed for in both the soils and the rinsate resulting from decontamination efforts. The analytical methods and respective detection limits will be as follows:

   Soil

   Methylene chloride
   SW-846 Method 5030/8240
   Detection limit: 100 ug/Kg

   TDA
   SW-846 Method 3540/GC/MS Method using DB-5 column analysis as proposed in June 28, 1988 submittal
   Detection limit: 10 mg/Kg

   Decontamination Rinsate

   Methylene chloride
   SW-846 Method 8240
   Detection limit: 5 ug/L

   TDA
   GC/MS Method using DB-5 column analysis as proposed in June 28, 1988 submittal
   Detection limit: 10 mg/L

   Soils and the rinsate resulting from decontamination efforts will be deemed contaminated and handled as hazardous waste if levels above nondetect result.

2. Sampling will be conducted initially at boring locations B-1, B-2, B-3 and B-4. The concrete and/or asphalt will be cored through at each location utilizing a cement core drill. Soil borings will then be done utilizing hollow stem augers and split spoon samplers. The auger and split spoon samplers will be advanced so that the first two feet of the soil directly beneath the storage pad are penetrated. The split spoon will then be extracted and opened. Using a measuring device to insure accuracy, five discrete samples will be collected as follows: at the soil surface, and at 6", 12", 18", and 24" below the soil surface. Samples will be analyzed and if necessary, subsequent samples taken in six inch intervals at each borehole until the extent of contamination, as defined in Stipulation 1, is determined.

   If no contamination is detected during the initial soil sampling, the pad may remain intact. After soil sampling completion, the boreholes

in the pad will be grouted in and the existing crack in the southwest corner of the pad repaired. The pad will then be triple rinsed with the proposed neutralization solution. The rinsate resulting after each rinse must be collected either in drums or in a licensed Act 64/Act 136 tanker truck. Run-on and runoff must be prevented. The rinsate will be analyzed for methylene chloride and TDA. The Detroit Water and Sewer Department's Industrial Waste Control requires that the rinsate being discharged to the sewer contain nondetectable levels of both methylene chloride and TDA. BASF must notify Mr. Steve Kuplicki of the Industrial Waste Control 24 hours prior to the discharge and inform him of the discharge rate and volume. Documentation regarding the discharge must be submitted to the MDNR as part of the closure certification. If the rinsate contains detectable levels of methylene chloride and TDA, it must be handled as a hazardous waste and disposed of at a properly licensed facility.

If soil contamination, as defined in Stipulation 1, is discovered at an initial borehole, the extent of the contamination will be determined at each location by soil analysis and if necessary, further sampling. Once the extent of contamination is determined, the proposed grid sampling program will be implemented at all grid locations immediately surrounding each initial boring location that is contaminated. Sampling will be conducted as described in Stipulation 2 and will be continued both laterally and vertically until the extent of contamination is determined by the occurrence of non-detect levels of contaminants.

If contamination is found in the soil underneath the pad, the pad will be handled as a hazardous waste and disposed of at a properly licensed facility. Excavation will be conducted utilizing appropriate equipment such as backhoes. Excavation of contaminated areas will be based on the established grid system interval as the radius, (nine feet) within the contaminated sample point(s) to the next depth interval. Excavation must be to the deepest point of contamination. After excavation, the grid must be resampled at the soil surface to verify that the area is free of contamination. If continued contamination is detected, the excavation format is repeated until a satisfactory result is obtained. All excavated soil must be stored in lined and covered roll-off boxes and properly disposed of within 30 days. Site security must also be provided.

3. Prior to drilling, at each boring location the augers and split spoon sampler will be steam cleaned. Should it be necessary to collect samples from a depth greater than two feet below the soil surface, the split spoon sampler will be decontaminated between each sampling event using a neutralization solution wash consisting of a water, 5 percent ammonia, and 5 percent detergent mixture and a rinse consisting of deionized water. All decontamination must be conducted on a pad that is designed to collect the rinsate and prevent run-on and runoff. All rinsate resulting from decontamination efforts must be collected and analyzed as outlined in Stipulation 1.

If excavation is warranted, a perimeter must be designated around the work area prior to initiation of excavation activities. Any equipment that enters the perimeter must be decontaminated with the proposed neutralization solution before leaving. Decontamination

must be done on a pad that is designed and operated to collect all rinsate resulting from the decontamination efforts and prevent run-on and runoff. The rinsate collected will be analyzed as outline in Stipulation 1.

4. BASF Corporation Chemicals Division shall notify the Waste Management Division Detroit District staff (313-344-4670) and Lansing Permits Unit staff (517-373-2730) at least five working days in advance of soil sampling and soil excavation, to enable staff to be present to observe and/or take samples.

5. The certification submitted to verify that closure has been carried out in accordance with the approved closure plan shall include all pertinent information listed in the attached "Closure Certification Checklist". Certification shall be submitted to the MDNR within 60 days after closure activities have been completed.

STATE OF MICHIGAN

JAMES J. BLANCHARD, Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T. MASON BUILDING
BOX 30028
LANSING, MI 48909

David F. Hales, Director

October 11, 1988

Mr. Kenneth C. Koneval, Manager
Environmental Affairs
BASF Corporation Chemicals Division
100 Cherry Hill Road
Parsippany, New Jersey 07054

Dear Mr. Koneval:

Subject: Approval of Closure Plan for
Hazardous Waste Container Storage Unit
BASF Corporation Chemicals Division,
MID 057 007 478

This letter is in response to your October 3, 1988 letter requesting clarification of the "Stipulations for Closure Plan Approval" established by the Waste Management Division (WMD) for closure of BASF's Troy, Michigan facility. The WMD reviewed your comments and has prepared the following responses:

Stipulation 1--BASF may utilize the methods established in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", EPA Publication SW-846 [Second Edition] when conducting chemical analyses of the soil samples and decontamination rinsate. The United States Environmental Protection Agency and the Michigan Department of Natural Resources (MDNR) have not yet adopted SW-846 [Third Edition].

The detection limits for methylene chloride analysis set forth in the "Stipulations for Closure Plan Approval", 100 mg/kg for soil and 5.0 mg/l for decontamination rinsate, are practical and remain unchanged. Both of these detection limits are higher than those established in EPA SW-846 Method 8240 [Second Edition] which BASF has indicated they will use in conducting the chemical analyses. The WMD has discussed these detection limits with the MDNR Laboratory and they have indicated that they are obtainable. Laboratory quality control/quality assurance procedures should provide a mechanism by which possible "inadvertent contamination" can be properly evaluated.

Stipulation 2--The language "Samples will be analyzed and if necessary, subsequent samples taken in six inch intervals at each borehole until the extent of contamination, as defined in Stipulation 1, is determined" is found in the last sentence of the first paragraph, Stipulation 2. The intent of this language was to make clear to BASF that if samples from the first 24 inches of soil were found to be contaminated, the company must continue sampling until the extent of contamination is defined. As was indicated to you on several occasions, if the first soil sample taken at a borehole is not found to be contaminated, subsequent analysis of the remaining soils from that respective borehole will not be required.

The WMD finds it acceptable that four discrete soil samples be collected at each borehole as follows: at 0-6", 6"-12", at 12"-18", and at 18"-24" below the soil surface.

The rinsate resulting from decontamination of the storage pad must be collected and analyzed. BASF has the option of combining the rinsate from each rinse and subsequently analyzing the collected rinsate or segregating each rinse and analyzing each batch of rinsate separately. If detectable levels of methylene chloride and/or TDA are found in the rinsate, the rinsate must be handled as a hazardous waste and disposed of at a properly licensed facility.

It is the opinion of the WMD that 30 days is a sufficient amount of time to store excavated soil on-site prior to disposal at a properly licensed facility. If hazardous soil was stored on-site for 90 days or more, BASF would effectively be creating another regulated unit.

Stipulation 4--As the WMD previously indicated to you, this language is incorporated into each closure plan approval in the event that the MDNR wishes to collect samples. The Lansing Hazardous Waste Permits Staff and WMD Detroit District Staff have not determined if the WMD intends to collect soil samples. However, after discussing the soil sampling procedures and approved analysis methods with WMD staff, we have concluded that there will be a sufficient quantity of soil available should we decide to collect samples.

Stipulation 5--Enclosed please find a copy of the "WMD Clean Closure Certification Checklist". A copy, as requested, was also forwarded to Mr. W.P. Robert.

Please be advised that, in accordance with 40 CFR §265.112(d)(4), the modified plan of June 28, 1988, (as modified by the August 12, 1988, "Stipulations for Closure Plan Approval") is the approved closure plan.

If you have any questions, please contact me.

Sincerely,

Ronda L. Hall

Ronda L. Hall
Environmental Engineer
Hazardous Waste Permits Section
Waste Management Division
517-373-2730

Enclosure
cc Mr. W.P. Robert, BASF
Ms. Marilyn Sabadaszka, U.S. EPA
Mr. Richard Traub, U.S. EPA
Mr. Kenneth Burda, DNR/C&E File
Ms. Lynne King, DNR

WASTE MANAGEMENT DIVISION
CLEAN CLOSURE CERTIFICATION CHECKLIST
(Guidance Document)

This checklist was developed to review RCRA clean closures. Due to direct reference to 40 CFR 264 Subpart G by Act 64, Rule 613; Act 64 closures should also be evaluated by this checklist.

Documentation supporting the independent registered professional engineer's certification can be requested under 40 CFR 264.115 and 265.115 (as of October 29, 1986). The owner/operation must submit at least two copies of certification documentation, one for MDNR, and one for the EPA files.

The checklist identifies items recommended to properly evaluate a closure certification. These items are not "absolutes". Other information or substitutions may be provided with technically justify and certify a "clean closure". The WMD Draft "How Clean is Clean" procedure is a recommended reference.

This checklist can be used for land disposal facilities and storage facilities. Several of the items would not be required for a storage facility where testing was minimal. Items 1 thru 5 would be required for all closures. Items 6 thru 11 would be optional for storage facilities, dependent on extent of testing required. Land disposal facilities would require all items listed.

1. Manifests (or some type of manifest/waste removal summary) of where and how much waste was shipped.

2 Certification statement is needed by the owner/operator AND an independent registered engineer. All independent registered professional engineer certificates must have an original stamp on at least one copy.

3. Summary of decontamination procedures (pressure wash, stream clean, etc.) and how waste water was disposed.

4. Summary analysis (include conditions of haul roads, time table, soil and groundwater results, weather conditions, runoff controls, equipment decontamination, etc.).

5. Results of all tests used to determine clean closure (chart, tables, lab sheets).

6. Statistical comparisons on sampling results compared to background. (This should include full computations on background and statistical analysis).

7. Sampling and analysis procedures (specify references).

8. Final depth and elevations of excavations of wastes and soils.

9. Properly labelled and easily identified sampling grid stations (map); including background stations.

10. Groundwater data (and statistical evaluation) used to determine if groundwater degradation has occurred (usually four sets of replicate analysis compared to sampling event after closure activities). Monitor well construction details and sampling and analysis procedures may be required if documentation is not in the file.

11. Summary of final restoration of excavated area... information on fill material used and/or future land use outline. If clean closure cannot be achieved (e.g. contaminated soils to water table and groundwater results show contamination) this summary item should be used to address the post closure program and/or corrective action.

12. A copy of the approved closure plan and letter of closure approval.

ATTACHMENT E

Detroit Water and Sewerage Department
Water Board Building
Detroit, Michigan 48226
(313) 224-4800

Coleman A. Young, Mayor
City of Detroit

December 16, 1988

Mr Bill Roberts
BASF Corporation
Chemicals Division
13000 Levan
Livonia, Michigan 48150

Dear Mr Roberts:

Re: Request to Discharge Rinsate Wastewater

The discharge of four (4) 55 gallon drums of rinsate is acceptable for discharge into the sewer system. The pollutants of concern discussed in your Troy closure plan, i.e. Methylene Chloride and Toluene Diisocyanate, were present in concentrations below the detection limit and are therefore acceptable for discharge into the system. This approval is granted on a one time only basis.

Please notify me in writing when you discharge the material. Should you have any questions, please contact me at 297-9411.

Sincerely Yours,

Stephen J Koplicki
Chemical Engineer